

DIGITAL HOME

APRIL '05
ISSUE 24

ULTIMATE ENTERTAINMENT TECHNOLOGY

RETURN OF THE...

Media Center

TEN NEW PCs THAT ARE A REAL
OPTION FOR THE LIVING ROOM

"Imagine
50Mbps
broadband!"
INSIDE INTEL p21

ESSENTIAL GUIDE

Which Big TV?

Choose the best tech
LCD ▶ DLP ▶ CRT ▶ PDP

HOW TO:
Make FREE phone calls with VoIP
Get the most from online music
Understand DVD formats
PLUS! Tips & tricks for Mac OS X

Reviewed & Rated



Humax 26" LCD TV

The LGB-26DDT claims that it's "HD-Ready", but does that make it a winner?



Optoma ThemeScene

The new H30a delivers stunning images and near-silent running for £1,000



Sonus DAB Radio

The latest and greatest digital radio from Pure with brand new 'voice' features



MobiNote DVX-Pod

Check out the 7-inch widescreen LCD, 20GB hard disk and DivX/WMV playback

DIGITAL HOME APRIL 2005 £3.95



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Home-Icon HI-R

*Colour Touch Screen Controller
for home cinema/whole house
lighting & home automation*

FUTRONIX

HOME-ICON



P50 Dimmer
3-level
no-neutral dimmer



P100 Dimmer
2-channel 600w
20 scene dimmer
24/7 timer



P400 Dimmer
4-channel 1200w
20 scene dimmer
24/7 timer



P800 Dimmer
8-channel 24w
multi-zone
24/7 timer



Enviroscene
Whole-house lighting
& automation system

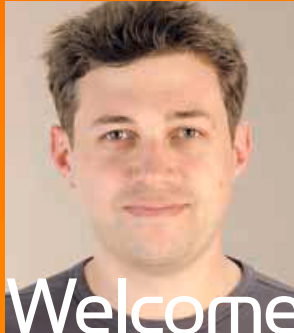


Home-Icon
Colour TFT Touch
Screen Controller



PFX System
Unlimited channel
commercial system

On The Cover



Welcome to Digital Home

Three years ago, the idea of a 'digital home' didn't stretch far beyond having a computer in one room and your TV and VCR in another. The two could be linked together, but only five star geeks knew how. Today, Media Center Edition PCs have the potential to bring the two rooms together, enabling you to record TV, browse digital photos and listen to your MP3 music collection. In the 2005 edition of the MCE software, you can burn recorded video to DVD and have MSN Messenger running in the background while you couch potato through *Match of the Day* with a bowl of chips. It's easy to become a fan.

But if Media Centers are so flexible and powerful, why have sales been so sluggish? Why aren't all new PCs being sold as Media Center PCs? Has it been the sobering fact that they're three times as expensive as a DVD recorder? Or are their prospects still hindered by their legacy IT complexities, making them fiddly to use and prone to a myriad of random system problems? Yes, there's safety in a consumer electronics device, but there's undeniable vision and power in an IT-based one. While Media Center PCs are far from perfect, looking at machines like the Elonex Lumina and the Hi-Grade DMS 2 this issue, we can see that they're getting better all the time.

We've picked the best Media Center PC systems for this month's Top Ten test – the countdown starts on page 61. It's the highlight of a packed issue that also includes a Buyer's Guide to Big TVs (page 27). See why DLP is often better than LCD, and how CRT sets are about to make a comeback.

Enjoy the issue.

Dean Evans, Editor
dean.evans@futurenet.co.uk

The best Media Center PCs fight it out in our trademark Top Ten p61

We report from Intel's annual tech-fest, the Developer Forum p21

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Transform your home into a 'digital home'. Tech help starts on p74

The Humax LBG-26DDT is big and HD-ready. But is it worth the money? p40

The new H30a is an ideal projector for that home cinema effect p47

Digital radio is enjoying a quiet revolution. Read all about it on p78 & p17

It's the biggest portable video player yet – check out the 7-inch LCD p54



Cover image: Be Cool, released 1st April



DIGITAL HOME

ULTIMATE ENTERTAINMENT TECHNOLOGY

We are the only magazine...

- ▶ Dedicated to all aspects of entertainment technology
- ▶ To offer the complete mix of computing and consumer electronics technologies
- ▶ That delivers cutting-edge technology news, authoritative reviews and hands-on solutions for the ultimate entertainment experience

ULTIMATE ENTERTAINMENT TECHNOLOGY

Inside



MEDIA CENTER 2005 TOP 10

The worlds of computing and home entertainment are colliding head on in the form of Media Center 2005. Sam Kielsen is given the task of finding the ultimate convergent device. **p61**



IN YOUR FREE CUSTOM INSTALL MAGAZINE...

- A £2 million refurbished apartment in Mayfair
- Complete guide to HVAC
- Find a custom installer near you



WHICH BIG TV? **p27**

Plasma v LCD v DLP v CRT. The choice of big TVs has never been greater, but which is the best technology?



TEAM LING - LIVE, informative, NON-cost and genuine !



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DIGITAL 

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-R +R -RW +RW -RAM = confusion, understandably

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Slash your phone bills with broadband telephony

PLUS!

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digital dilemmas

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Connect

PLUG IN TO THE LATEST
PRODUCTS & TECHNOLOGY

THE ROAD TO HDTV

Prepare for all-digital signals, high-quality pictures and hard disk recording when Sky launches high-def in the UK



Get ready to treat your flatscreen TV to the best TV pictures available, as Sky confirms details of its high-def set-top box. Sky recommends a set with a digital connection and a screen of at least 26 inches.

New details of the UK's first high definition TV service, set to debut in 2006, confirm that you can expect visuals of startling quality, with an all-digital link between the HDTV receiver and your TV. Broadcasters will be able to transmit programmes in the highest quality HDTV format available. But owners of older TV sets could be left because of plans to encrypt the broadcasts all the way to the screen, for which you'll need a new or recently bought set.

The HDTV service is being planned by Sky, which aims to offer high-def entertainment, sport and documentaries over its satellite network from next year. The service is sure to incur an extra subscription cost, and you'll need a brand-new set-top box to receive programmes.

Speaking at the recent DVB World conference (DVB is the Europe-wide standard for digital TV broadcasts), Sky's chief operating officer Richard Freudenstein said the new boxes would decode both HDTV formats - 720p and 1080i, and broadcasters will be free to choose which will suit their programming. The devices will provide an HDMI connection that will send a pure digital signal to your TV. Cable connections such as Scart lose some picture quality because they convert the signal to analogue, but an HDMI link should result in a picture that's indistinguishable from the original.

To take advantage, your TV will need to have either an HDMI or a DVI socket. If you're buying a new TV, Sky recommends that you look for the 'HD Ready' label, which confirms that the set has a screen resolution of at least 720

DIGITAL CONNECTIONS

Most new plasma, LCD and DLP televisions now include a digital socket connection as well as traditional analogue links such as Scart or component output. HDMI (High Definition Multimedia Interface) carries both video and audio from one device to another, ensuring that the entire broadcast remains fully digital. DVI (Digital Video Interface)

carries a video signal that's compatible with the one used by HDMI, but no audio, which instead goes through a separate analogue connection. In TVs, personal video recorders and DVD players, both HDMI and DVI work with the HDCP encryption standard. DVI links used by PC and flatscreen monitors do not recognise HDCP transmissions.



The kind of flexible hard disk recording features already seen in today's Sky+ boxes will also be on offer in the new generation of HDTV receivers.



HDTV STANDARDS

Every TV broadcast consists of individual frames, with European transmissions updating the picture 50 times a second. Programmes can be broadcast using either progressive or interlaced pictures. If the picture is progressive, the entire image is changed with each update. If the picture is interlaced, each update changes only every other line, with the subsequent update changing the other lines. Progressive transmissions create a more stable picture but require more effort to transmit.

The two HDTV standards Sky intends to use are 720p, which delivers 720 horizontal lines in a progressive transmission; and 1080i, which sends 1,080 horizontal lines in an interlaced transmission.

horizontal lines and a digital socket. It's estimated that around 400,000 sets now in use qualify as HD Ready. Sky expects that figure to rise to two million by the end of 2006.

The Sky HD box will also provide component outputs that provide an analogue signal to older sets without HDMI, but the picture won't be as good. You could also lose the ability to view some programmes or channels. HDMI supports an encryption technology called HDCP or High Definition Digital Content Protection. Any programmes broadcast with HDCP encoding would work only through an HDMI- or DVI-equipped set.

The set-top box, which will be made by Thomson, will also provide personal video recording facilities of the type offered by today's Sky+ units. You'll be able to play one recording while making another or time-shift live programmes so you can watch them from the start while recording of the event continues.

Sky sees its plans for HDTV as an important revenue-earner. It will be able to charge premium prices for visuals that will offer around four times the detail of today's digital broadcasts. Upcoming sporting events such as the 2006 World Cup and the 2008 Olympics are expected to provide a major shop window to show off high-def pictures. It's also an

important distinction with Freeview. Limits on the broadcast bandwidth available to Freeview mean it would struggle to offer more than a few HDTV channels.

Freudenstein told the DVB World audience: "Our ambition is to raise the bar again. We want to reaffirm that the digital satellite platform is the home of the highest-quality viewing experience available."

Sky's own channels are sure to offer plenty of opportunities to view HDTV. Sky One has access to plenty of American imports that are already filmed in high-def. The BBC is also active: programmes like the recent *Supervolcano* docudrama are already made in HD, and the corporation intends to make all its programmes in HD by 2010. You can expect a limited BBC option as soon as Sky's HD service launches.

New Movies



DVD OF THE MONTH

House of Flying Daggers

Region 2

Sublime photography illuminates this tragic folk tale, brought to life with understated, intimate acting and kick-ass fight scenes. Zhang Yimou also directed *Hero*, which was released earlier this year on DVD to great critical acclaim. This sumptuous double-disc set presents the movie in crisp 2.35:1 widescreen and Dolby 5.1 audio, while the centrepiece of the extras lineup is an extended documentary showing how the film was made. You can also expect cast interviews, a comparison between the storyboards for key scenes and the filmed version, and – possibly a first for DVD extras – a report on scouting out locations.

www.houseofflyingdaggers.com. 2nd May

DVDS



Birth

This moody piece drew controversy over its storyline and Lauren Bacall's comments about co-star Nicole Kidman. Fans of the film will be disappointed with the lack of extras. Region 1. 19th April



Blade: Trinity

Wesley Snipes' vampire hunter returns in two editions. The unrated version has an extended widescreen cut, while the standard version offers the cinema release in widescreen. Region 1. 26th April



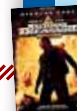
Hotel Rwanda

The recent movie awards season dramatically raised the profile of this compelling glimpse into the dark heart of Africa. Includes commentaries from the director. Region 1. 12th April



Meet The Fockers

The crass title's a perfect indicator of the level of humour in this hit sequel, but you'll enjoy Robert De Niro and Dustin Hoffman locking horns. Region 1. 19th April



National Treasure

It's not exactly an Indiana Jones for the 21st century, but this Nic Cage vehicle delivers spectacle nonetheless. The DVD includes an alternative ending. Region 2. 25th April



Ocean's Twelve

Many rated this sequel in the style of the Rat Pack movies as lazy and self-indulgent, but the star power of Clooney, Pitt, Damon and Roberts makes this an irresistible choice. Region 1. 12th April



Sideways

A satisfying and subtle movie gets a generous DVD presentation, with extras including deleted scenes. The audio commentary by the two lead actors should be a highlight. Region 2. 2nd May

TRAILERS

A Scanner Darkly

Keanu Reeves and Robert Downey Jr headline a paranoia piece, with animators working over the top of their performances. www.apple.com/trailers/warner_independent_pictures. Release TBA

Dig!

This documentary, exposing the feud between the Dandy Warhols and the Brian Jonestown Massacre, could be the next classic rock movie. www.digthemovie.com. July

Hitch-Hiker's Guide to the Galaxy

A superb trailer sees Stephen Fry as the Hitch-Hiker's Guide itself as he takes the mickey out of movie trailers. <http://hitchhikers.movies.go.com>. June

Six things to do in APRIL



ORDER AN ONLINE ALBUM

MAY WE SUGGEST MARTHA WAINWRIGHT'S DEBUT (4TH APRIL) FROM NAPSTER? See page 78



VISIT THE SMART HOME SHOW

HOME AUTOMATION MEETS HOME CINEMA AT THE NEC IN BIRMINGHAM. WE'LL BE THERE. JOIN US. 14th-17th April

CHEER ON ALAN SHEARER!

WILL NEWCASTLE'S CAPTAIN MAKE IT TO THE FA CUP FINAL? BBC/Sky, April 16th

CELEBRATE ST GEORGE'S DAY

MAY WE SUGGEST THAT OUR NEW NATIONAL EMBLEM SHOULD BE AN HD-READY WIDESCREEN LCD TV? 23rd April

WATCH THE GRAND NATIONAL
THE UK'S GREATEST RACE 9th April



RENT I ♥ HUCKABEES

EXISTENTIAL DETECTIVE WORK THAT LOOKS GOOD PLAYED BACK THROUGH A MEDIA CENTER See page 61

Philips Wireless Music System E800

Philips takes multi-zone audio systems to the mass market

Until recently multiroom wireless music systems were the preserve of PC-loving geeks or seriously rich hi-fi enthusiasts. This is now set to change with the release, in the summer, of the Philips WACS700 Wireless Music system.

Originally unveiled at CES in January, the system follows the form of traditional music room setups by pumping music to slave devices in different rooms, but operates using wireless 802.11g technology rather than standard cables. At its heart is an attractive £600 black and silver B&O-style hi-fi that's designed to be hung on a wall or placed on a stand. It features a CD player and a 40GB

hard disk and, as it comes with software that rips CDs to the MP3 format already embedded, users can transfer any disc to the hard drive, even those with copyright protection, at speeds of up to 4x.

Once stored on the hard disk users can either play the music back via the unit's built-in amplifier and speakers, or stream the MP3 music to slave devices around the home. Christened the WAC700 station and available for £200 these devices are smaller than the main unit and feature just an amp, speakers and integrated wireless facilities. Up to six of the units can be wirelessly tethered to the main system enabling

the user to set up six different music streams to six different rooms.

For serious digital enthusiasts there are, however, limitations. The system isn't compatible with downloaded music files, it won't play back any format other than MP3s and it won't connect to an external music player such as an iPod. Yet given its competitive price and ease of use, it will certainly gain wireless audio many new converts.

www.philips.co.uk

KEY FEATURES

CD drive; 40GB hard disk; remote control; MP3 playback; 802.11g wireless compatibility; 2x 40W digital amplifier

Kiss Technology DP-558 ETBA

The first digital video recorder you can programme online or via a mobile phone

Last year Sky promised owners of the Sky+ hard disk based digital video recorder that they would soon be able to remotely programme their unit via the internet and mobile phones. Sky has not yet delivered on its promise, and now Kiss Technology is set to get there first. This Danish company is releasing the DP-558, a feature-packed digital video recorder operated via a web-based interface that can be accessed either via a PC or smartphone. Users simply set up their own web page to control the unit's electronic programme guide remotely. Footage is then stored on the unit's 80GB hard disk (a 200GB version is apparently on the cards).

The recorder also offers the option of rewinding or pausing live TV.

For the DP-558 to access the electronic programme guide it has to connect to the net via broadband. Users can harness its PC-Link facility to stream music, video or image files from either a PC or a Mac. Recorder programmes can also be transferred from the DP-558 to a PC, enabling them to be archived on a DVD. Other features include a web radio tuner and access to online games.

Kiss Technology is keeping quiet about availability and price, but we expect it to debut in the UK in the summer for around £800. www.kiss-technology.com



KEY FEATURES

80GB hard disk; DVD player; remote programming via web or smartphone; pause live TV option; audio, video and image streaming from PC or Mac

Sony Ericsson W800 ETBA

The first phone to join the Walkman family

Sony may have lost a number of the battles in the personal audio market, but judging by its recent launches, it isn't intending to lose the war. With Apple set to unveil an iTunes-playing phone manufactured by Motorola in the near future, Sony has nipped in there first and produced a Sony Ericsson handset that wears the Walkman brand.

Designed to be as much a music player as a mobile phone, the W800 combines music playing software with a generous amount of storage, as well as providing quality earphones and speakers. The device will play back MP3 and ATRAC files, which are stored on its 512MB of

flash memory; in this instance a Sony Memory Stick Duo card.

Sony has also addressed one of the big issues of music-playing phones by delivering a battery that will run for around 30 hours when the handset is used solely for music, and 15 hours if the user makes calls. The phone is also accompanied by software which, according to the company, makes it very simple to load music on to the handset. Handily if the phone rings while the user is listening to music, the phone will automatically set the track to mute to enable the user to take the call.

In addition to its music playing facilities the chocolate bar style

handset also features a two-megapixel camera, Bluetooth and video capture facilities.

Sony Ericsson is expected to release the W800 in the UK and the rest of Europe in the summer. There is no final word on price yet but the company says it will be similar to the cost of other high-end handsets, such as its K700.

www.sonyericsson.com

KEY FEATURES

MP3/ATRAC music player; 512MB Memory Stick Duo card storage; headphones with integrated speaker; two megapixel camera and video capture; Bluetooth



Alienware DH2 £1,000

Alienware's living-room friendly Media Center PC

Alienware has done more than most to reinvent the PC as living room friendly. The US company's Microsoft Media Center PC DH2 takes the concept a step further by not only resembling a consumer electronics box, but also actually behaving like one. In terms of design it looks not unlike a DVD player. Round the back there are sockets, including composite AVs and S-Video ports, normally found on AV products rather than traditional PCs.

Unlike rival Media Centers, included with the DH2 is a pair of analogue TV tuners, enabling the viewer to watch one channel while simultaneously recording another.

There's also a movie finder option that details films by time, rating or even director. Another standout feature is the advanced cooling system that ensures an ultra quiet operation. Prices will start at around £999 for a basic system.

www.alienware.co.uk

KEY FEATURES

Microsoft Windows XP Media Center Edition 2005 with Service Pack 2; 2x TV tuners; DVD writer; EPG; up to 400GB hard drive; Intel Pentium 4 processor with HyperThreading Technology; up to 2GB of memory; compatible with Microsoft Media Center Extender system



Cowon iAudio X5 £249 (20GB version)

A rival for the iPod Photo that does video too

Korean manufacturer Cowon has released some impressive personal audio products and now has video loving consumers in its sights with the iAudio X5, due to reach stores in the next month or so. A rival to the iPod Photo with its 1.8-inch 160 x 128 pixel LCD display, the iAudio X5 has the advantage that it's compatible with MPEG-4 video files as well as JPEG image ones. It also supports the recently introduced USB on the go format enabling users to directly upload images from similarly equipped digital cameras.

This slim, stylish device plays back almost all the major audio formats including MP3, Windows

Media Audio, WAV and Ogg, although there's currently no compatibility with downloaded copyright protected WMA tracks. The player also comes with JetShell software which apparently makes it easier to create playlists and transfer tracks.

The iAudio X5 is currently available with either a 20GB (£249) or 30GB (£269) hard disk – and a 60GB version may follow.

www.mp3-plus.net

KEY FEATURES

1.8-inch 160 x 128 pixel LCD display; 20/30GB hard disk; MPEG-4/JPEG playback; MP3, WMA, WAV and Ogg playback; JetShell software



Inverto IDL-7000T £219

Feature-packed hard disk Freeview recorder

One of the biggest disadvantages of many of the hard disk-based video recorders that access Freeview's digital terrestrial transmissions is that they often tend to only sport one digital tuner. This creates a problem for consumers in that they can't watch one digital TV channel while recording another. The Inverto IDL-7000T, which has just gone on sale via the online retailer www.unbeatable.co.uk, solves this by

adding a second digital tuner, which enables users to record not one, but two digital channels simultaneously.

In spite of its competitive price the Inverto boasts a high level of features. It sports an 80GB hard disk,

which the manufacturer claims can store up to 60 hours of video in long play mode. Also unlike some rival products which only offer limited electronic programme guides, the Inverto delivers two weeks of on screen programme listings. The usual hard disk video trickery is also featured, including instant replay of live TV and the option to pause a programme halfway through. Another useful facility is picture-in-picture which allows the viewers to watch two digital channels simultaneously.

Other features include one touch transfer of recorded programmes to

VHS

video recorders and series record, for when the user wants to archive the entire programme in a series. The IDL-7000T is available for around £250.

www.unbeatable.co.uk

KEY FEATURES

2x digital TV tuners; 80GB hard disk; two week on screen programming guide; one touch VHS archive; picture-in-picture



New Music



TUNE OF THE MONTH

M Ward Big Boat

If you're prepared to invest the time, the web offers plenty of opportunities to discover unfamiliar acts. This free track is a brief introduction to M Ward's fourth album, *Transistor Radio*. 'Big Boat' grabs your attention in seconds as a boogie piano riff and ramshackle drums establish an off-kilter rhythm. But the killer touch is Ward's voice, which combines the rasp of an elderly bluesman with the attitude of a young Elvis. As the brief track fades out, you'll be convinced that here is a performer you should find out more about.

www.betterpropaganda.com. Out now

MUSIC ONLINE

50 Cent Disco Inferno (Edit)

Napster claims an exclusive version of this lolling rap track, but it turns out to be merely the album version with all the swear words taken out – which kinda defeats the object. *Napster*. Out now

Beck Game Boy Variations EP

On the back of his new *Guero* album, Beck is releasing a flurry of web remixes, cashing in on the trend of recording tracks with the most basic synthesizers available. *iTunes*. Out now

DJ Shadow vs Keane

We Might As Well Be Strangers
With the trio's debut album strip-mined for singles, this is a glitchy remix of *Hopes And Fears*' most windswept song.

iTunes. Out now

Ben Folds Landed

The indie pianist and songwriter delights in issuing internet-only releases. His latest is a tuneful update on the classic Elton John sound. *iTunes*. Out now

Natalie Imbruglia Shiver

A preview of what could be a make-or-break album, after the sales wipeout of *White Lilies Island*, sees Imbruglia playing it safe with a return to pleasant pop.

iTunes, *02 affiliates*. Out now

Nas iTunes Originals

The latest in a series of exclusive recordings by the New York rapper. New versions of fan favourites are interspersed with Nas's commentary on his work.

iTunes. Out now

MUSIC ON DISC



Faithless Forever Faithless

Following on the heels of last year's *No Roots*, this career summary includes the best work of the hip hop collective plus a smattering of new material. *Audio CD*. 2nd May



Genesis The Lamb

Lies Down on Broadway
After a successful search for the original master tapes, the definitive prog rock album is remixed into pristine 5.1 surround. *SACD*. 18th April



Nitin Sawhney Phltre

Sawhney's latest dance project sees a mix of hip hop and drum 'n' bass with world music influences. A host of collaborators comes along for the ride. *Audio CD*. 2nd May



Bruce Springsteen Devils & Dust

The title track is The Boss's take on Iraq so don't expect a mellowness to the country songs. *Audio CD*. 26th April



DAVE GORMAN

Comedian Dave Gorman talks about the joy of 'txt', digital radio and the iPod

Favourite websites?

I love chortle.co.uk, it's very professionally put together. I also go to B3ta.com which has great links for weird websites.

What computer do you have?

I've got the latest Apple iMac G5. It doesn't take up much space and it looks nice too – I'm such a tart. I've also got two identical Mac Powerbooks, one I use on the road and one I use just for the show.

Have you always been a Mac man?

No I first got a Mac about three or four years ago. But it's a bit of a one way street; once you start you don't want to go back to PCs.

Do you have wireless?

While I was living in New York I got Wi-Fi for my laptop. There were so many Wi-Fi users out there I was able to piggy back on their networks – it was magic. But I don't have a wireless handheld device because I would end up downloading lots of spam.

Do you get loads of emails?

Yes, hundreds a day. That's why I don't have my broadband connection at home set up to retrieve email automatically. It would just be ping-pong every ten seconds.

Who do you use for broadband?

I have ADSL through Virgin but haven't been very happy with it. The email service, in particular, has been terrible.

Do you own a camera?

I've got a Nikon 4-megapixel model and am looking to buy a photo printer next. My Mum's got one. She used it recently to print out pictures at my brother's wedding! She's so tech-savvy, she even texts me.

Do you text?

I've got a tri-band Nokia phone and text all the time. But even in text messages I spell things out properly. What annoys me is people who use text abbreviations – it's easier to read 'great' than 'GR8'.

You must have an iPod too?

Yes, I have a 40GB third generation model with 4,000 songs on it. Because I'm travelling I use it all the time. I have it on random play most of the time.

Any other gadgets?

I've got three digital radios including two Pure Bugs. They look great next to the iMac. I love the fact that you can record the radio on to a hard drive. I've also got the iStation for the iPod, which is great for listening to music when you're in hotels.

Dave Gorman's Googlewhack Adventure is published by Ebury Press, priced £7.99

DualDisc in the UK

The hybrid music format arrives at last – just in time to face some stiff competition

After a month-long delay, the latest attempt to coax us into buying music recorded in surround sound is reaching the UK. DualDisc offers tracks recorded in Dolby 5.1, which plays through home cinema equipment as long as you have a compatible player. While previous attempts to market surround sound formats have met with mixed fortunes, the record labels backing DualDisc believe the format's compatibility with CD players, which can use a stereo mix also on the disc, will prove popular.

Three labels operated by 5.1 Entertainment Group are the first to launch titles on 25th April, with Universal and EMI expected to follow shortly. The 5.1-channel mix is held on a layer of the disc that's compatible with DVD-Audio equipment. While previous DVD-A releases have confused some customers because of non-standard packaging and an

inability to work on CD players, DualDiscs will be packaged in the same way as CDs and will be placed in the same racks. This way you can buy a DualDisc now and play the CD layer, then enjoy the surround mix once you upgrade. Some manufacturers, however, have advised against buying this music format while they conduct tests to assess their compatibility.

While DualDiscs have been available in the US since last year, the presence in Europe of the similar DVDPlus format has delayed the newcomer's arrival, because of a dispute over patent rights. DualDisc also faces competition from Super Audio CD, which already provides dual-device compatibility. Warner, meanwhile has muddied the waters even more by issuing album packs that contain both a CD and a separate DVD-A disc.

www.dualdisc.com



THE SHINY DISC MUSIC MAZE

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DualDisc The new tech on the block offers a 5.1-channel mix for DVD-A players, and a stereo mix

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Time Will Tell
- **The Mavericks**
The Mavericks
- **Gary Moore**
Back to the Blues
- **Todd Rundgren**
Liars

SMART HOME SHOW

New show dedicated to the digital home opens its doors on Thursday 14th April

The Smart Home Show, the UK's first consumer exhibition dedicated to integrated home technology opens its doors this month on 14th April at the Birmingham NEC.

The show has been designed as a showcase for 'smart home living' solutions and will feature product demos and

advice on all the latest in home entertainment technology, networking and security. Exhibitors confirmed to appear include Crestron, Siemens, Philips, Hitachi Europe, SmartControls, Lutron, Music Matters and Goelst UK. *Digital Home* and *T3* will also be there.

A highlight of the show will be the Sevenoaks Sound and Vision Fusion Lounge, a 'real room' feature demonstrating the world's best home entertainment systems. The show will also host a programme of free daily seminars, which will provide help on installing home technology. For tickets, call the Hotline on 0870 730 0964. Tickets are £10 on the door or £7 in advance. www.smarthomeshow.co.uk



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TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

The latest on: Sony's Portable PlayStation

Expectations run high as the UK waits impatiently for the imminent arrival of Sony's latest addition

A year ago, everyone understood handheld gaming: Handheld gaming meant a screen, a d-pad, and a copy of *Advance Wars*. Then Nintendo and Sony changed the rules, and no-one quite knew what would happen next. Nintendo went out on a limb, inventing a console that sounded like a joke, looked like a mistake and is only now getting games which are showing its real worth. In contrast, Sony's PSP sounded like heaven, looked like it would bankrupt you, and still isn't on the shelves. Its vision of a multimedia games machine with a generous widescreen display and PS2 quality gaming has been dogged with rumours of dismal battery life and inflated retail prices. But it's now teetering on the brink of world domination. Retailing for just \$249 in the US and equipped with a battery which will get you through the day (if not much more), the stage is set for the PSP to take Europe by storm.

What's the latest?

Several months after its release, Sony is still struggling to meet demand, leaving many Japanese gamers frustrated. What's bad news for them, however, is good news for us. One of the reasons for the stock shortages is that Sony is stockpiling PSP's ready for the US launch (March 24th) and console's imminent UK debut. Those lucky few who bagged one of the Japanese machines are mostly still in awe – even after months of play, the clarity of the screen is extraordinary. Game support is also improving: the US is looking forward to over 20 release titles.

The US is also going to benefit from Sony having sorted itself out a bit. The Japanese launch was very badly supported – no UMD movies available, despite all the big talk about the multimedia future, no software (initially) to allow users to code their own



Sony's PSP has flown off the shelves in Japan, leaving many bitterly disappointed.

AVI files to the Memory Stick, no online games ready for play. The US launch should fix all that, and there's every reason to hope the same will be true for the UK.

The PSP is billed as a portable multimedia hub, but it's still a little unclear how this is going to work in practice. It will be possible to buy some UMD movies for it, but support from film studios is still almost non-existent. Movie files can be saved to Memory Stick, but you'll need software which 'wraps' the MPEG-4 files in a Sony wrapper, without which the PSP won't recognise them. Sony is promising downloadable movie content, but there's no news on how or when that might happen. Online capability is also unclear. If you have a Wi-Fi network installed you will be able to

use it to take your PSP online for gaming use, but whether the tantalising prospect of internet access will be implemented isn't yet known.

When do we get it?

We don't know, although Amazon has claimed the 24th June. Ultimately, we've not got long to wait. In the US and Japan, Sony only announced the release date six weeks before the machine hit the shelves, so it's likely that the PSP will arrive in the Summer. And when it arrives, we'll have the best line-up of launch games, a selection of UMD movies and the possibility of full online play. The price still hasn't yet been announced but it's likely to be £150-£180.

The analyst's view

Ever since Sony launched the original PlayStation ten years ago, people have been asking when it would attack portable gaming – a space dominated so far by Nintendo's Game Boy. The PSP is an extremely impressive device that targets the 18- to 34-year-old technology/entertainment market, rather than Nintendo's early teens. Clearly, Sony will sell as many PSPs as it can manufacture in the next 12 months.

But the PSP represents more to Sony than just a "Game Boy killer". It can help Sony regain lost ground in the digital audio playback, portable video, and even communications markets. In short, it could restore the innovative, cool, device-manufacturer image that has slipped recently as Apple, Microsoft, and others have surged ahead.

The PSP is a general-purpose, networked, digital appliance masquerading as a game console – a brave move by Sony, particularly given an RRP that must hurt its bottom line. Content will make or break the platform, as always: not only must the games be extremely good but, more importantly, Sony must look to the future and develop Wi-Fi networking services, encourage people to buy movies on UMD, and build an iTunes-like music and video download service that really engages. And all these applications need to be easy to use if Sony is to realise its aim of a mass-market controller and media device for all consumers. Paul Jackson, Principal Analyst, Forrester Research (www.forrester.com)

Stats

Despite Nintendo's head start in the US, Sony is winning the software battle



Display

The PSP's display is a 4.3-inch, 16:9 TFT LCD, with a resolution of 480 x 272 pixels and 16.77 million colours. It has three selectable brightness levels, and can be switched off when the console is being used as an MP3 player. After some trouble with dead pixels, Sony is rumoured to have swapped to a manufacturer that offers better reliability with slightly reduced colour quality.

Processor

The PSP is powered by two 32-bit MIPS R4000 processors, with clock speeds of up to 333MHz. The games released so far are of a graphical quality roughly equal to that of most current PS2 titles, but there's no question there's room for improvement. Some developers have been cutting clock speeds to ensure performance, but results will improve as they become more skilled at exploiting the hardware.



Memory Stick

The PSP takes the Memory Stick Pro Duo, which is used for saving game data and updates, and can store MP3 and movie files for playback on the PSP. Duo Pro is currently only available in the UK up to 512MB – big enough for a movie but not much more. But Sony is promising larger sizes, as well as price drops, in the coming months.

Wireless

The IEEE 802.11b connection enables both 'ad hoc' and 'infrastructure' modes, which means that you'll be able to connect with local PSP users for gaming sessions, as well as those further afield when you get online via a Wi-Fi network. No online games are yet released, so it's not yet clear exactly how full Wi-Fi access will work, but Sony is working to make it as painless as possible.

The first games



Archer Maclean's Mercury

This amazingly tactile puzzler asks you to manoeuvre balls of mercury through fiendish mazes and past vicious traps. The mercury is beautifully fluid, splitting and splurging round the obstacles it faces, and the puzzles and level design are perfectly calibrated to hit that sweet spot between infuriating and irresistible.



Infected

A zombie-killer with a difference, *Infected* pits you against a legion of undead who can only be killed with bullets dipped in your blood. Multiplayer lets the winner 'infect' the loser's PSP with his avatar, and whoever the loser goes on to defeat will also be infected with your identity. A website tracks how far you've spread.



Wipeout Pure

The game that defined the original PlayStation is likely to work the same magic for the PSP. Stunningly presented, the feel of anti-gravity racing transfers well to the PSP's analogue nub. Taking full advantage of the PSP's Wi-Fi abilities, it will be possible to download new tracks and design your own skins for the game's interface.



Untold Legends: Brotherhood of the Blade

Destined to be one of the PSP's most popular multiplayer games, *Brotherhood* takes the dungeon hack 'n' slash pleasures of the PS2's *Champions Of Norrath* and lets up to four players drop seamlessly in and out of a surprisingly detailed and beautiful world. The PSP version might well be the best yet of the series.

Coming soon...

Other upcoming games include:

Metal Gear Acid; Lumines; Need for Speed Underground; The Rivals; Tony Hawk's Underground 2 Remix; Death Jr; Namco Museum; Ridge Racer; Twisted Metal.

The UMD movies announced in the US so far are:

Spider-Man 2; xXx; Resident Evil 2; Once Upon a Time in Mexico. The heavily hyped Final Fantasy VII movie Advent Children is also in the works.



The Downside

The biggest disappointment about the PSP is that Sony has cut corners on the finish. The on/off/suspend switch is flabby, the analogue nub can be easily pulled out if your PSP gets snagged on its case, and one of the main buttons has a squint and slightly unreliable contact – a deliberate decision by Sony, not a manufacturing error, designed to accommodate the sumptuous screen.

WIN!

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Two months ago we reviewed and rated the Top Ten AV amps in the UK. It was a bloody battle, but ultimately Denon triumphed with the formidable AVR-3805, worth £1,000. And now you have a chance to win one. Lucky you, eh?

This month, *Digital Home* has teamed up with Denon to offer one winner an AVR-3805 multi-channel amplifier. All you have to do is log on to our website and complete a short form to be in with a chance of winning it.

The AVR-3805 is full-fat home entertainment at its very best. It's powerful but articulate; producing a sound that is both huge and delicate at the same time. Whether you're watching Bruce Willis or listening to Wolfgang Amadeus Mozart, the mighty Denon AVR-3805 will handle it with consummate ease. www.denon.co.uk

To be in with a chance of winning this fantastic amplifier, go to www.digitalhomemag.com and click on Competitions.

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- ▶ 7.1 channel input
- ▶ 9.1 channel preamp output



The sound of litigation

Many computer owners are against the use of digital rights management technology, which prevents or limits the copying of video and music files, because they believe that entertainment industries should instead embrace a more enlightened policy of unfettered distribution. Scott Moschella's protest was a little more creative than most, however. Winning a freebie iTunes Music Store track in a competition, Moschella downloaded his chosen track, stripped out its DRM protection and posted it on his website. While this might normally be an invitation to get sued, the track Moschella chose was 'Silence' by Ciccone Youth, comprising of a minute or so of nothing. When even complete silence is copy-protected, maybe the geeks have a point. www.itunes.com

Phone home

A new service enables you to make phone calls to aliens. Your \$4-per-minute call is automatically routed to a large satellite dish pointed at a region of space with a high density of stars, which in theory means plenty of planets where someone might be waiting to take your message. The Talk To Aliens service aims to add email and instant messaging soon. www.talktoaliens.com



If you're that clever...

Police in the South Korean city of Kwangju have been brought in to get to the bottom of an elaborate student cheating scheme. The ringleaders recruited around 40 students who had done well in exams, providing each with two mobile phones. The phones were purchased with the help of other students who agreed to put their names to the purchases. The ringleaders then rented a motel room where the 40 swots could practise texting answers to test questions in the shortest possible time. During the exams, which assess students before they enter college, the fast-fingered swots used one phone to send answers to another group of students positioned outside the exam rooms, who then relayed each answer back to all 40 students' second phones, as well as phones belonging to other collaborators. You are not alone in thinking it might have been easier to just do the sodding revision.



Bo Lundberg/Folio

OPINION

THE QUIET REVOLUTION

Falling prices and sexier gimmicks are helping to ensure dramatic growth for DAB. Just don't expect it to be front page news. **Chris Price** reports



With all the hype surrounding the Apple iPod and the brouhaha over digital TV, it's easy to forget a digital technology which doesn't have such great free PR: digital radio, or DAB (Digital Audio Broadcasting) to give it its official name.

While news that ten million iPods have now been sold worldwide was extensively reported in the press, some equally impressive statistics about DAB over the last few months were largely ignored by the media. In January the Digital Radio Development Bureau (DRDB) reported that one million digital radios were sold in the UK in 2004 – taking the overall total to 1.3 million – and that by the end of 2005 this figure is expected to rise to 2.4 million. DRDB predicts that by 2008 8.3 million people will have a digital radio and that the market, currently worth around £90 million, will have risen to a whopping £500 million.

Nor is this optimism confined to the industry's own body – it's also reflected in the retail sector itself. In February Dixons announced that sales of DAB radios in its stores were outstripping those of analogue radios by two to one.

So what has brought about this quiet revolution? Is it the realisation that radio broadcasts don't have to have a perpetual hiss? Or is it that maybe people are powerless to resist the aural delights of digital radio stations like XFM, 1Xtra and BBC7? However it seems it's neither of the above. That sales of digital radios are doing so well is largely down to two factors: improved hardware choice (both in terms of radio design and features) and falling prices. Around three years ago you were looking at spending the best part of £500 on a standalone digital unit. Now you can get a decent DAB radio for under £50.

What's more, the manufacturers of digital radios seem to have learned a valuable lesson from their digital TV set-top box manufacturer cousins: that attracting people to a new

technology isn't always about selling the benefits of better quality, but coming up with new features that excite people, albeit in a very small way.

Whereas in the early days of digital radio there was a strange kind of snobbery about the technology which meant that the only people who bought units were bearded hi-fi buffs and Classic FM listeners (or both), these days the manufacturers are pitching their products at a much younger and tech-savvy audience. This has resulted in more funky-looking portable units and, of course, iPod-type functionality.

Undoubtedly the turning point for digital radio came just over a year ago when Pure Digital, a company best known for its elegant but somewhat sober digital radios, announced a partnership with designer Wayne Hemingway. The end result

was The Bug, a digital radio that actually looks more like the head and shoulders of a robot dog than any bug I've ever seen, but which has nevertheless apparently sold by the shedload. Of course the reason The Bug has proved so popular isn't just down to its innovative, if somewhat strange, styling. It's also because of the onboard technology. Like the audio equivalent of Sky+, the Bug lets you pause live radio, rewind to the start of the track and record to an SD memory card.

Now Pure Digital has gone one step further and introduced a digital radio that actually speaks to you. Tap the snooze bar of the Sonus-1XT once and it will tell you the time in human tones no less. Tap it twice and it will confirm your alarm settings with you. It can even spell out DAB's scrolling text. Quite why anyone would need a speaking radio is beyond us, but then just like comedians need a catchphrase, so do new gadgets need a gimmick. And, sadly perhaps, a digital radio that speaks to you or which lets you rewind a particular song is a much more sexy message to get across than one that offers hiss-free broadcasts. *See page 46 for a review of the Pure Sonus-1XT.*

Do you agree with Chris? Let us know what you think by emailing digitalhomeletters@futurenet.co.uk.

“These days the manufacturers are pitching their products at a much younger audience. This has resulted in more funky-looking portable units”

COMING NEXT MONTH IN DIGITAL HOME

How to set up multiroom audio

Whatever your budget, we've got a solution for you



Boston Acoustics Voyager 6

Take your music outside with these waterproof speakers



"Have video, will travel..."

We reveal the best way to watch video on the move

Top Ten PVRs

Once you've used one, you'll find it impossible to live without one!

The hottest hardware...

- ◆ InFocus TD40 DLP TV
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- ◆ M&K K5 speaker system
- ◆ Six DVD/VHS combi players

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InFocus TD40

Who says that DLP TV sets can't be thin?



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Top Ten PVRs

The VCR is dead. Get a PVR and take control of your TV



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This month: Getting ready for HDTV; buying a PVR; printing problems; and is Sony replacing its Vaio laptops too fast?



WHAT'S IN A NUMBER?

Reviews of the Sony Vaio S2 have finally convinced me to move on from the Sony PCG-R600 that has served me well for the past five years and invest in some new technology – it's a testament to Sony that anyone can get five years out of a laptop!

I went down to Tottenham

Court Road to see one for myself – it is a beauty to behold. But imagine my angst when I realised that the next version, the S3, was already available. Having looked at the specs for the two I haven't convinced myself that the S3 is an improvement. My real worry is on the graphics and that the Go 6200, on the face of it, would appear to be a step back from the 9700.

Have you guys tested the S3 (did I miss it?) if not what are your thoughts? At knock down prices the S2 looks like a steal, or am I missing something?

Patrick Fogarty

We're in total agreement with you. The S2 is a fantastic laptop, but it's interesting you should mention the S3, as we've come to essentially the same conclusion as you. The S3 does use newer technology, with faster memory, a faster processor, etc. The graphics may be a slight step down, but there's very little in it. The main problem is the battery life. Whereas the S2 stretches to an average approaching five hours, the S3 will only last you up to about two-and-a-half, due to the more powerful components inside it. From our point of view, this makes the S2 a better bet, especially at a knockdown price.

NOT A FAN OF FANS

Have you chaps reviewed the Digifusion FVRT200 yet, or are you still waiting for it? I'm waiting for it to go on sale, but now it looks like the Panasonic TUCTH100 might be on its way too, so I'm not sure which one to get – the quietest one, preferably. Will you be reviewing the TUCTH100 too?

P Douglas

No, we've not had a chance to review the FVRT200 yet, although Digifusion has recently announced a FVRT300 model, which looks even better. We have a Top Ten test of

PVRs scheduled in for our next issue, on sale 5th May. Along with the big-hitters such as Sky's 160GB Sky+ box, we'll also be looking at the various Freeview alternatives from Toshiba, Sharp and JVC. We'll try to include the PVRs you mention, but release dates and product availability will ultimately determine the contenders.

YOU ONLY PRINT TWICE

While I was very interested in both the 'Linksys Media Center Extender' and 'Listeners flock to digital radio' articles on page 12 of your March issue of *Digital Home* [issue 23], I have to admit that I wasn't interested enough to read them again on page 14.

Mr Tennant

If you listen carefully, you can hear the sobs of those responsible as they are demoted to plate collecting and pot-washing duties in the office canteen. Needless to say, you didn't miss a page of editorial in that issue – the printing error simply duplicated page 12 over an advert for our sister magazine *PC Plus* that was destined for page 14.

THE IMPORT BUSINESS

I'm off to the States at the weekend to go skiing, and I want to purchase a Media Center Extender by Linksys or HP. I had assumed that they didn't work, but in the March issue of *Digital Home* [page 12] you imply that a US Extender will work provided that the power supply is sorted out. Can you please confirm that the Extender can be modified to work with a PAL system?

Graham Cummings

Yes, the US Extender will work: the power supply is not a problem, just the plug. You'll need an adapter to plug it into a UK mains socket. US Media Center Extenders only output a signal in NTSC, not PAL, and the US boxes can't be forced to embrace it. However, most modern TVs will cope with NTSC signals. Check your TV's manual to see if it's compatible. The MPEG-2 video format is not specific to one system or the other, so a US extender talks to a UK Media Center perfectly. However do bear in mind that US MCE's don't support widescreen TVs properly, don't have RGB outputs, and offer cut-down MCE functionality.

EMAIL OF THE MONTH



HDTV CONFUSION

Am I the only one who's getting confused about the specs for HDTV? As I understand it, HD will appear in two different resolutions, namely 720p and 1080i. But there's also a 1080p specification planned, so where does that fit in? And apparently, if I don't buy a TV with an HDMI connection I won't be able to get Sky's HD service next year. Is the same true for the terrestrial services when they launch? How are we supposed to make a buying decision when nobody is explaining the standards!

Stephen Richards

You're right, the HDTV landscape has yet to settle down in Europe but a concerted marketing campaign is about to begin. EICTA, the European ICT Association, has recently approved a handy 'HD Ready' logo, to highlight the equipment that it has deemed capable of displaying high definition broadcasts. This enshrines a minimum set of specifications for any wannabe HDTV set, which are: a minimum 1,280 x 720 or 720p resolution (at 50 and 60Hz), component video inputs, plus an HDMI or DVI connection. Sky has confirmed that it will provide its HD services in both 720p and 1080i formats, starting in 2006; the BBC has yet to define its own specifications and will probably wait until there's sufficient demand. As for true 1080p, nothing is being broadcast in this resolution, even in the US, while sets that claim to support it are up-scaling the picture. If you're thinking of buying your next big TV, the 720p/1080i approach will likely become the standard for Europe.



Buying a new TV? Then check the HD specs.

GET IN TOUCH

Your feedback is valuable to us. What do you think of this edition of *Digital Home*? Did you find the information you need? And what topics do you want us to discuss in the future? We'll give the writer of the best recommendations a Bug DAB digital radio from Pure Digital, worth £150. Send your letters to digitalhomeletters@futurenet.co.uk.

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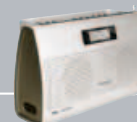
the bug



EVOKE-1XT



DRX-702ES




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PURE



The new age of computing

Imagine **broadband speeds** fast enough to stream several **video** streams simultaneously and all in glorious **high definition**. Imagine tuning your kitchen **radio** to **any station in the world**, or **surfing thousands of global TV stations**. Imagine **laptops** with **batteries that last a whole day** and that can **connect to the internet anywhere**, even miles from the nearest telephone point and without expensive 3G subscriptions.

All of this is possible, and it will happen sooner than you think. Behold the new age of computing.

By Kieran Potts ►

Nearly a billion people – that's about one-sixth of the world's population – have an internet connection at home. But very few – about three per cent of all humans – have fast internet access: broadband. That's about to change. Dramatically. And not because of lumbering developments in over-worked landline communications, such as ADSL. No. The long-awaited broadband boom will come about because of some giant leaps forward in mobile technology. Broadband is about to take to the air, and the secret ingredient that will make wireless broadband cheap and available to the masses is silicon.

A couple of years ago, a 'hot spot' meant a rocking nightclub or a sunny holiday resort. Then along came Wi-Fi and upset the authors of the OED. But no sooner has the new definition entered the public consciousness when it becomes completely irrelevant again. An exciting development in wireless technology is about to obliterate the 'spot' and jack up the 'hot'.

Of course we already have wireless internet in the form of Wi-Fi, or Wireless Fidelity communications. But its short range makes it ►

useless for everything except home networking and checking your email over a Starbucks latte. And anyway, contrary to popular belief, Wi-Fi isn't true wireless internet. It's actually only a networking standard; it just so happens that the network can itself be connected to the internet. And that means that Wi-Fi is dependent on having a nearby cabled access point. And its range is so restricted that coverage of Wi-Fi will always be extremely limited.

But what if broadband internet could be delivered without having to use our age-old telephone lines? What if broadband could reach out further than the few metres of today's Wi-Fi hotspots and be delivered wirelessly over many miles, say from base stations that are similar to mobile phone masts?

WiMAX does just that. WiMAX – which is short for WorldWide Interoperability for Microwave Access – is set to revolutionise how we communicate, play, work, and find information. We've heard all this

before, of course, from the 3G operators. So what's so different about WiMAX?

City-wide wireless

WiMAX – less romantically known as IEEE 802.16 – is a new means of delivering broadband into homes and businesses, doing away with the restrictions and expense of laying cabling. A wireless chip inside your computer will simply connect to your local broadband access point – which could be as much as 30 miles away. You will pay a small subscription for the privilege as you do now for phone-line broadband.

And the range is staggering. At the moment, a single 802.11g access point will cover a small building. A single WiMAX tower located in, say, Westminster, would have a range extending out to Guildford in Surrey. If you're familiar with New York City, a single WiMAX access point would cover the whole of Manhattan, and then some. It's not so much LAN as WAN – wide area networking.

And that's not all. You know you can only get 2Mb broadband now, if you're very lucky? Well WiMAX should deliver speeds of up to 50Mb. That's insane. You couldn't possibly use all that bandwidth if you streamed the three extended *Lord of the Rings* films simultaneously in high-def. As Craig Barrett, CEO of Intel, recently said to a room packed with journalists: WiMAX “will get us away from the half-arsed broadband capabilities we have today”.

WiMAX is unlikely to replace current Wi-Fi standards, as both serve different purposes. But the obvious development on the back of WiMAX would be mobile Voice over Broadband (VoIP) phones. That would create serious competition for 3G networks, which UK telcos have paid



Craig Barrett, CEO of Intel, quipped recently: WiMAX “will get us away from the half-arsed broadband capabilities we have today”

a truck load of rare rocks for. It could get very interesting.

And think of the applications. WiMAX enabled kitchen radios that allow you to search thousands of internet radios from all over the world, tuned as simply as today's digital DAB radios. And because Intel is already developing small computing chips with WiMAX capabilities, almost any handheld device could have built-in WiMAX connectivity. In fact Intel and Nokia are already beavering away on a variant of WiMAX specifically for mobile devices. Also the advertising industry has expressed interest in the technology: outdoor electronic billboards could be updated remotely using a WiMAX connection. *Digital Home* has been talking about the concept of “anytime, anyplace, anyhow” for over two years now... and even 3G hasn't properly

delivered on that promise, at least not yet. WiMAX just might.

We shouldn't have to wait long either. Early trials of WiMAX are already on the go and we could see the first public demonstrations this year – in the US at least. Pentium-style WiMAX chips, which Intel has nicknamed ‘Rosedale’, will be ready as early as the autumn. And it's because WiMAX can be easily commoditised into mass produced chipsets that WiMAX-enabled devices will not cost the earth. Moreover, setting up a WiMAX network will be inexpensive, especially if existing mobile phone masts could be used. Research firm In-Sat estimates that it would cost a mere \$3bn – pocket change, in the grand scheme of things – for the necessary equipment, sites, towers, labour and set-up costs to beam WiMAX to 90 per cent of the population of the mainland US.

So WiMAX will probably compete with all the communications systems we have today in cost more than anything else. That's very good news for you and I. No doubt there'll be a slew of “base stations are killing my fish” arguments, but personally we can't wait. **DH**

Further reading:
www.WiMAXforum.org



This silicon wafer is the foundation for today's computer processors. Each individual square of the wafer is called a die, and each microprocessor within each die forms part of the ‘brain’ of a PC system.

WIRELESS TECH COMING SOON

WiMAX

IEEE 802.16 is the new wide-area network (WAN) format that's being pushed by the likes of multinational companies Intel and Nokia. It will provide direct wireless broadband speeds over distances of up to 30 miles, with speeds of up to 50Mb for those closest to the base station, which would trail off the further you are away from it.

802.11n

The Institute of Electrical and Electronics Engineers (IEEE) is developing faster Wi-Fi, or 802.11, standards for wireless home networks. One of them is 802.11n, due for release later this year or early next. Its theoretical throughput speed could be as much as 302Mbps, compared to 802.11g's 54Mbps. Actual throughputs should be at least 100Mbps.

UWB

Ultra-Wide Band is another new wireless technology being developed as a communication device between different electronic components – a bit like Bluetooth today, but a hundred times faster. UWB is designed to transmit enormous amounts of data quickly over very short distances – perfect for hooking your TV to your high definition DVD player without cables. The main

challenge in developing UWB has been that it works across a range of frequencies, not just one, so the possibilities of interference and a bad signal are high. But Intel says its work on the first chipsets is almost complete and we saw one of the first public demonstrations last month in San Francisco. USB dongles will also allow us to use Ultra-Wide Band to connect components of our existing PC and home cinema system.

The silicon gods

Demands on our PCs are rising. We want graphics intensive software, and several programmes running simultaneously. And we want to be connected, anytime, anywhere, using simple handheld devices.

The secret ingredient to achieving this dream is silicon. Today's silicon chips are impressive pieces of engineering. Silicon chips are made up of millions of transistors, each one playing a different role. Think of it as a football field in which every blade of grass is individually mown and facing in a specific direction. That's the level of engineering that goes into a single silicon chip.

To increase processor speeds, you need to increase the number of transistors. At the same time, however, consumers want smaller, more portable electronics devices. The solution to this is to create even smaller transistors. Today's transistors are about 90 nanometres in diameter, a nanometre being a billionth of a metre. By contrast a human hair is about 10,000

computer processing has been on clock speeds, this is only one aspect of the performance of a chip. For example, the Pentium M actually had a lower core clock speed than its predecessor, but was better in other ways, such as its ability to fetch data from the CPU. Intel's latest version of Pentium M leaves the 2 gigahertz rating unchanged but instead boosts performance by increasing the speed of data flow between the processor and other components.

Multi-core

The next big leap forward in chipset design won't come until late this year or early 2006, when dual-core

Two slow processors working together will increase performance without consuming vastly more power

nanometres thick. And the technology will almost certainly go smaller than that.

Intel inside

In fact, the number of transistors on a chip has doubled roughly every 18 months to two years since the 1960s. Today there are roughly 42 million transistors on a Pentium 4 processor.

And there shouldn't be a finite ceiling to computing power, either. While in the past the emphasis in

processors become readily available. The first dual-core chip will be Intel's Pentium D (formerly known as Yonah), which has two processors in a single chip. The idea is that two slower processors working together will boost performance without consuming more power.

Combine dual-core chips with HyperThreading – which divides a single processor into two streams – and you've got some serious grunt. A good example of multi-tasking is

Taiwan is taking the lead in entertainment PC design. Here is just one of many exciting new Media Center PCs to come from the country recently. The Atlas (above) is from Fic (www.fic.com.tw) and is one of several cool designs from the company.



found in the digital home. We want our media PCs to act as a PVR, music player, high definition video player, and multiplayer gaming platform at the same time. Dual-core technology will boost the performance of all of this because each of the different processor 'threads' can handle different tasks – it's more efficient than one processor doing the lot.

The Pentium D also promises to be extremely power efficient, and if it delivers, we could finally see powerful notebooks that run all day on a single battery charge. Well, that's what the white papers claim.

The move to dual-core chips will be slow as software applications need to be developed to make the most of the multiple processing streams. For one, we'll need to wait for Longhorn – the next version of Windows – before dual chips can become mainstream. And that's not expected to arrive until late next year.

But dual-core is just the start of a new trend away from single chip processors. Eight-core chips aren't far off, and in the years to come we'll see chipsets made of dozens, even hundreds, of processors. **DH**

Q&A



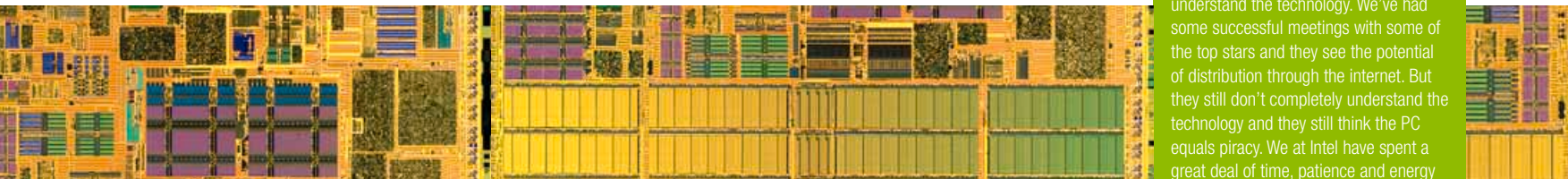
Donald J MacDonald, vice president Intel's Digital Home Group, talks about the challenges ahead for chip manufacturers

You've talked about reinventing the desktop. What do you mean by this?

The desktop is still our largest sector in Intel today. But it's poor – we have to make it more interesting, to do more things. Having the entertainment functionality, having the networking capabilities, finding new ways to get some excitement back into the PC... then we can come up with some interesting new applications for the desktop. Dual core will really help this sort of functionality – you'll be able to record TV and play games through a single PC at the same time.

Is Hollywood starting to listen?

Well, the talk is good, but nothing's changed. Some people in Hollywood do understand the technology. We've had some successful meetings with some of the top stars and they see the potential of distribution through the internet. But they still don't completely understand the technology and they still think the PC equals piracy. We at Intel have spent a great deal of time, patience and energy talking though some of our anti-piracy measures and showing them that it doesn't have to be this way.



The Wise

The intelligent home is no longer the stuff of dreams and science fiction. It is now a reality with affordable technology providing almost unlimited potential for home owners, architects and developers to create living environments that are welcoming, secure and richly rewarding to inhabit.



“...without considerable knowledge or experience, high quality home cinema is not a suitable DIY activity.”

Choice

Back in the domestic dark ages something as simple as sitting down to watch a movie was a labour intensive exercise: draw the curtains; dim the lights; switch on all the audio and video equipment; find a handful of remote controls and instruct the various components to connect to each other properly. All this had to be done before you could press the “Play” button. With today’s technology the home owner can simply press one button on a personally customised keypad and all the work is done. Press “Play DVD” and all the electronics are powered up and configured while the curtains and lighting are adjusted automatically to suit his or her preferences.

Of course, it doesn’t stop there. Contemporary control and distribution systems can do far more.

They can be programmed to activate the home’s alarm system or switch on a closed circuit TV camera. Elsewhere in the home someone might be listening to music – maybe from a hi-fi system or perhaps from an Internet radio station. As they move around the home, their music can follow them through a network of concealed speakers mounted in the walls or ceiling. In fact, with a multi-room audio distribution system everyone in the home can have their favourite music piped through to wherever they happen to be.

Lighting naturally plays a vital role in the home of today. Sophisticated systems now allow the home owner to create lighting schemes that are appropriate for any activity – all at the touch of a button on a handset or wall-mounted keypad.

For all of these possibilities to be exploited to their best advantage, the home first needs to be fitted with a 'structured' wiring system to enable music, video, data, telephone, security and control signals to wherever they're required. It is generally best to do this either during construction of the home or while a major refurbishment is underway.

Planning and installing such a system is not a task that can be successfully co-ordinated or carried out by anyone who is not fully experienced in all the areas concerned. An electrician, for example, might well be able to install the lighting but would struggle with the complexities of a multi-room audio system. And while a competent hi-fi dealer could handle the sound system, he would have problems with the intricate projection equipment in a top-flight home theatre system. The dealers listed on these pages, however, have the necessary multi-discipline experience to provide the home owner, architect or developer with whatever audio, video and multi-room set-up they require.

Multi-room Audio

Multi-room Audio used to mean turning up the stereo in the living room so that the sound blasted all round the home. Those unsophisticated days are long gone. Now you can feed sound to every room in the home, selecting what goes where and how loudly it's played.

Exploiting the Internet

The integrated home with structured wiring is ready to exploit the Internet as it grows. Media servers can catalogue your CD collection, source music for you and organise your TV viewing. Fully structured wiring includes computer network cabling, allowing PC's to share data, Internet access, and the facility to play games from different rooms.

Home Theatre and Video

It is now possible to enjoy your movies in big-screen splendour, thanks to DVD, superb quality projection and screen systems, widescreen plasma displays, and full digital surround sound. With automated blinds and lighting, you have a true cinema experience. Of course, that's over the top for catching the lunch-time news, so you can revert to a conventional TV or a plasma display for lights-on viewing. Add in the components for distributed video and you can have the broadcast that interests you following you from room to room - or you can leave your home theatre and finish off watching the movie in your bedroom.

The advantages

Whether you are a home-builder, an architect or a home owner the benefits are clear. A house that usefully exploits today's (and tomorrow's) technology makes a far more appealing proposition than one that does not. In fact, any professional who doesn't make his clients aware of the options and capabilities available to them is doing them a disservice.

Any new home or house that's undergoing refurbishment should be equipped with a structured wiring system. The dealers listed below are amongst the best in their field and can provide a trouble-free installation service that guarantees that it's not a return to the days of portable radios, dimmer switches and a dozen remote controls!



WISE CHOICES START WITH SMART CUSTOM INSTALLERS

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■ NI GRAHAMS HI-FI

190a New North Road.
020 7226 5500

■ W4 MARTIN-KLEISER

109 Chiswick High Road.
020 8400 5555

■ SW11 ORANGES & LEMONS

61-63 Webbs Road, Battersea.
020 7924 2040

SOUTH

■ Ashford, Kent

SOUNDCRAFT HI-FI
40 High Street. 01233 624441

■ Beaconsfield MARTIN-KLEISER

9 London End. 01494 681300

■ Brighton POWERPLANT

40 Church Road. 01273 775542

■ East Grinstead AUDIO DESIGNS

26 High Street. 01342 314569

■ Horsham AUDIO DESIGNS

7-9 Park Place. 01403 252255

■ Kingston-upon-Thames

INFIDELITY

9 High Street Hampton Wick.
020 8943 3530

■ Rayleigh, Essex

RAYLEIGH HI-FI
44a High Street. 01268 776932

■ Rickmansworth, Herts

PRESTIGE AUDIO

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■ Maiden Bradley, Wiltshire

FLAMINGBOX LTD

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■ Worthing

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01903 507077

MIDLANDS

■ Birmingham SOUND ACADEMY

152a High Street, Bloxwich, Walsall.

01922 493499

■ Coventry

FRANK HARVEY HI-FI

EXCELLENCE

163 Spon Street. 024 7652 5200

■ Solihull MUSIC MATTERS

93-95 Hobs Moat Road.

0121 742 0254

NORTH

■ Doncaster

THE HI-FI STUDIOS TWO

The Long Barn, Wakefield Road.

01302 727274

■ Nottingham

CASTLE SOUND & VISION

48/50 Maid Marian Way. 0115

9584404

■ Warrington

CHRIS BROOKS AUDIO

29 Gaskell Street. 01925 261212

York SOUND ORGANISATION

2 Gillygate. 01904 627108

SCOTLAND

■ Glasgow STEREO STEREO

260 St. Vincent Street.

0141 248 4079

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Which Big TV?

By Richard Stevenson

It's not easy buying a big screen TV these days. The era when you could simply ponder whether you wanted a 28-inch or 32-inch widescreen CRT and then nip off to Dixons have long gone. Pop into a TV retailer today and you will be faced with screen sizes up to a whopping 70 inches, using a confusingly diverse range of display technologies.

Plasma, LCD, CRT and DLP-based TVs are all vying for your buying pound and, despite the advertising blurb, not every one is suitable for every situation. Judging which screen technology is best for you means delicately juggling value, picture quality, style and convenience – not easy when no two TV technologies offer the same balance of each.

Just to compound this issue further, the TV market is awash

with myths, the most infamous being that plasma TVs offer better pictures than CRTs – generally they don't! Buy into a cheap plasma TV and it will look a whole lot better on the wall switched off than it will switched on. At the other end of the spectrum we have seen plasma pictures to die for – but deep pockets and in-store bravery are essential requirements.

And what of connectivity? With HDTV around the corner (although this corner is still a little way off) has your chosen TV got the right connections and the correct resolution to make it future proof? TV technology has never been so exciting or offered so much for your cash. Don't venture to the shops without reading our definitive guide to big screen TV technologies. ►

Choosing CRT

Traditional televisions may be as unfashionable as mint-coloured trousers, but CRT screens still have a future...

Cathode Ray Tube (CRT) technology is a golden oldie of consumer electronics. It's been around since 1967 in colour form and that's a whole lot of time for manufacturers to get things right. In terms of picture quality per pound there is nothing to beat a good CRT TV and manufacturers still manage incremental increases in screen performance every year.

Innovations like Sony's Wega Engine, Philips' Pixel Plus and Panasonic's Quinatrix technology have ensured not only CRT's survival, but its continued success as the best selling TV technology. Well, that and the fact that they cost a fraction of the price of new technologies, of course.

There's life in CRT yet

Despite this bargain basement status and venerable image, CRT packs a number of benefits over other technologies. Its natural colour, superb contrast and super-smooth scrolling are second to none, it won't lose brightness over time like plasma, and the viewing angle is much better than LCD. Okay, below a 14-inch screen size, CRT becomes relatively too bulky, and at over 32 inches, the additional weight of the glass tube means that you need to be a body builder to move it. But a CRT TV is also likely to outlast other technologies with a life expectancy of 12 years or more.

Of course, it's not all roses with CRT TVs, even between 14 and 32-inch screen sizes. The electron gun at the neck of the tube needs to be almost as far back from the screen as it is wide, leading to a heavy and bulky product. They are clearly not going to hang neatly on the wall, and bigger models can be armchair-sized.

Samsung, however, has recently announced an altogether more lithe range

of CRT models in the US using a wider dispersion electron gun. The SlimFit 30-inch TV is an appealing 16 inches deep, but Samsung is yet to announce either a launch date or a sensible name for these CRT models in the UK.

Buying advice

When choosing a CRT TV it is difficult to really fault the picture performance of any big name brands, reducing the variables to screen size (widescreen naturally), cosmetics and features. Assuming you have opted for a good-looking widescreen model that fits in your living room, the features count is like adding extras to a car - you pays your money and takes your choice. Top of the list should be either 100Hz or progressive scan technology for a smoother image and a built-in Freeview tuner to maximise all that free high quality digital content without another set-top box.

A CRT is likely to outlast other technologies with a life expectancy of 12 years

Connectivity is generally excellent on brand name models, but make sure you have at least two or three Scart sockets, a component input for best quality DVD, plus front mounted AV inputs for a camcorder or Xbox. Sadly no CRT TV currently available is fully HD compatible, and digital video inputs (DVI/HDMI) are as rare as good acting in an episode of *Hollyoaks*. This situation could improve this year, but if you want a future-proofed set for the coming HD age, newer technologies and deeper pockets are essential.



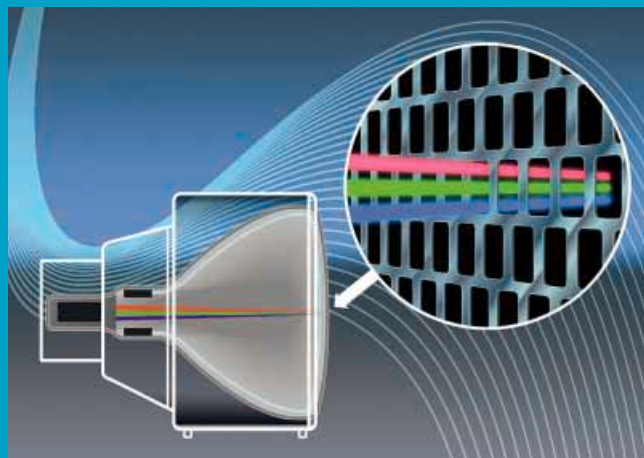
Even with a budget as tight as £750, getting a new big screen TV is not a great challenge. While newer technologies such as plasma and LCD are out of the picture if you want cinema-sized viewing there are plenty of excellent 28-inch CRT TVs and even some 32-inch models on the market that fit the bill nicely. While hanging one on the wall is out of the question, the picture quality benefits from 50 years of CRT R&D. It has the lowest energy consumption of any current display technology and is still going to look pretty cool on a sexy AV rack in the corner of your room.

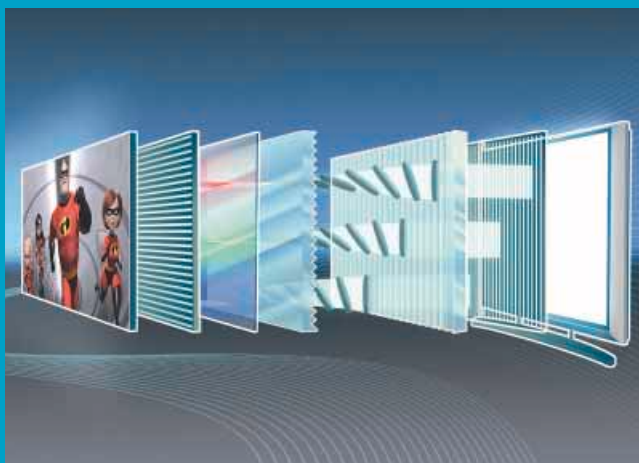
Recommended product
JVC HV-32D40 £750

Which TV?

How CRT works

Using a very high voltage, the electron gun at the neck of a TV tube causes a cathode (negative electrode) to emit rays of electrons towards an anode (positive). These streams are directed with a steering yoke through the vacuum in the TV tube towards the screen. They pass through a fine mesh called a shadow mask to further focus each beam on to red, green and blue coloured phosphors coating the inside of the screen. The phosphors hit by the electrons glow, creating coloured points of light. Each line of phosphors is scanned 50 or 100 times per second (50Hz or 100Hz) to form what you see as the TV picture.





How LCD works

LCD technology works on the basis that light polarised in one direction will not pass through a filter polarised at right angles to it. An LCD panel consists of two sheets of polarising plastic filters and layers of electrically sensitive liquid crystals in between. When a voltage is applied to a pixel, the crystals turn through an angle. This effectively blocks light passing through the panel at that point, creating a 'switched off' pixel. Add alternate rows of red, green and blue filters, put a strong light behind the panel, and the result is a display capable of showing full motion video. The slim construction results in an equally slim TV, suitable for wall-mounting.

Magtorch

Choosing LCD

Slim and desirable, LCD screens are the new belles of the TV ball. But they're not as perfect as you think...

Liquid Crystal Displays have been around for over 20 years but have only recently become a reality in the TV market. The reason being that their fundamental operation relies on crystals moving in a viscous liquid and, like wading in treacle, it's a very slow process. Early generation LCD panels simply could not switch pixels on and off fast enough to cope with a moving video image, and consequently remained in clock displays and PC monitors that were predominantly used for near-static images.

Thankfully, as the technology has developed, the pixel-switching time has dropped dramatically and, in the very best models, causes very little motion blur on moving images. This has opened the floodgates for LCD TVs from 14 inches right up to over 30 inches. However, unlike plasmas, price is no indication of quality.

Hot or not?

LCD contrast ratio is generally poorer than any other TV technology as the backlight can leak through the 'switched off' pixels. A potent backlight can lift the brightness figures, but colour is dependent on single block filtering, so the total range of colours and the colour saturation are also mediocre. The deep liquid crystal substrate means the picture integrity fades away as you move off axis, although the latest models claim a viewing angle up to 130 degrees. That said, manufacturer's specification sheets can read like Tolkien-scale fiction at times, so getting a demonstration of an LCD TV before you buy is essential.

So why is LCD currently the must-have technology? Not only are LCD TVs a super slim flat panel, they are much lighter in

weight than plasma models, as the LCD itself is made from plastic rather than glass. Screen resolutions are HD friendly on larger screen models and each pixel has a much better defined edge definition than the glowing phosphor dots of plasma or CRT – creating a very sharp image. LCD TVs do not suffer screen burn-in from constantly displaying static images, are

LCD spec sheets can read like Tolkien-scale fiction. Get a demo – try before you buy!

silent in operation and, from an energy-saving perspective, use little electricity.

But the biggest key to LCD TV's rise has been falling prices. Each panel is cut out of a single large sheet of fully engineered LCD and each new manufacturing generation creates larger initial sheets. This reduces cost per unit and hence the street price – with near 30-inch models now on sale for less than £1,000. Considering the best 32-inch CRTs are still approaching that price, the hang-on-the-wall LCD TV has an unshakeable appeal.

LCD TV costs will continue to fall, the picture quality will continue to rise and, as features like digital tuners, memory card readers and wireless connectivity become mainstream, LCD TVs will dominate the 14- to 32-inch TV screen market. As long as you make sure you are buying an HD-ready model and try before you buy – you can't go wrong.

With a grand to blow on a big screen TV the options really open up. Don't be tempted by a cut-price plasma TV at this level because they are truly poor and another flatscreen technology is well within reach – LCD. While currently 27 inches is about as big as £1,000 will get you, we think there will be a plethora of 30 and 32-inch LCD TVs with a street price below £1,000 this summer. Buying an HD compatible LCD TV gives you a super crisp image in a sleek hang-on-the-wall package – the perfect balance between style and functionality.

Recommended product
Sagem Axiom HD-L27 **£999**



Which TV?

Choosing DLP

While LCD gets all the attention, DLP TVs balance out stunning picture quality with a slightly fatter back-end...

Digital Light Processing has come of age in the last few months. DLP rear projection TVs have hit the high definition resolutions of the best plasma models and do so at half the price. In fact the technology can offer brighter images than plasma with no screen burn-in, higher contrast than LCD and even better sharpness and picture motion than CRT – so what's the catch?

The catch is...

As you'll see from our description of how DLP works, it's an indirect view display technology. Light has to be generated externally and reflected off the DLP chipset on to a screen inside a rear projection television. This means that the overall picture is not only dependent on the quality of the DLP chipset and image processing, but also requires excellent optics, very pure light and a method of generating the primary colours – red, green and blue. Quality glass optics, UHP lamps and colour wheels spinning at exactly the correct speed do not come cheap and, as DLP is a patent technology of Texas Instruments, DLP TV builders have to buy TI's devices.

All this technology has an impact on the price tag, and while DLP rear projection models are certainly cheaper than similarly specified plasmas they are still a lot more costly than CRT TVs. On the up-side, the technology is easily scalable without a great impact to the manufacturing cost, so the larger the DLP screen the better the relative value. Models start from around 40 inches but don't really come into their own until 45, 50 and 60-inch screen sizes, when they have a significant price advantage over larger screen plasma TVs. (One note of caution: the DLP projector bulbs are only likely to last you three or four years,

although can be replaced for around £250.) For the style and space conscious, DLP RP (rear projection) TVs are a half-way point between very deep CRT models and super-slim flat panels. Most DLP RPTVs are currently around 12-18 inches deep at a 50-inch screen size, although Thomson unveiled a model at CES this year that is less than six inches deep. Manufacturers are generally fitting decent sized loudspeakers too – making DLP models the best sounding TVs available.

Buying advice

Almost every DLP RPTV model now sports HD resolutions of at least 1,280 x 760 pixels and DVI or HDMI connectivity to hook up to HD sources as they become available. Simply don't consider any models that do not have these features and look out for progressive scan and twin tuners to add quality and usability. The viewing angle

Models start at around 40 inches, but really impress at 45, 50 and 60-inch sizes

should be at least 140 degrees to ensure you can see the TV from every seat in your room, and physically check vertical viewing angles as older models can suffer reduced brightness if viewed from standing up.

As a final note of caution, make sure to ask what chipset it uses. Only consider models sporting HD2+ (DarkChip2) or HD3 (DarkChip3) technology at present, and look for HD4 models later in the year. With the lower cost of bigger screen sizes, HD compatibility and ever shrinking cabinet depths, DLP TVs have a very bright future.



With £2,000 in your pocket a plasma TV might be on your purchasing radar – but hold on. At this price nothing can get close to the clarity, brightness and sheer impact of a good DLP rear projection TV. Okay, a DLP TV is not as slim or as sexy as flat panel, but if the picture quality of what you watch is top of your priority list DLP will beat a sub-£2,000 plasma every time. Better still the technology means that vast screens are only a little more expensive than standard sizes – putting 50-inch models within your budget.

Recommended product

Optima ThemeScene HD50 £1,999

Which TV?

How DLP works

DLP technology uses a tiny chipset backed by a rectangular array of up to 1.3 million hinge-mounted mirrors, each measuring one-fifth the width of a human hair. This Digital Micromirror Device (DMD) is addressed by a video signal to individually tilt each mirror thousands of times per second, effectively turning pixels on, off or creating a greyscale. Light from a pure white lamp is reflected vertically off of the chip, through a focusing lens and bounced from a large mirror on to the screen of the TV. This basic image is black and white, so a spinning wheel containing red, green and blue filters colours the image in fast refreshing frames.





How plasma works

A plasma panel is a great big sandwich of glass and the filling is an array of tiny sealed pockets. There are three pockets per image pixel, each coated in either red, green or blue phosphors and filled with a plasma gas. Electrodes span these tiny cells and when electricity is applied the plasma gas gives off electrons that excite the phosphors into glowing. The sophisticated electronics in a plasma TV generate a range of electrical potentials between the electrodes of each cell, creating a range of colours and brightness levels for each pixel. The net result of the entire array being lit in this way is the video picture you see.

Magdorch

Choosing Plasma

The ultimate choice for the ultimate TV. But not all plasmas are created equal – if a model is cheap, it's bound to be nasty...

If your prime reason for buying a new TV is simply to exude a classy air of style and sophistication then give up on other technologies and go for a plasma TV right away. Nothing has the big-screen hang-on-the-wall kudos of a large screen plasma.

But hang on just a minute. Did you know that most low-cost plasma TVs have a resolution some 30 per cent lower than your old CRT model, and can't even display the full resolution of broadcast TV? How about the fact that the brightness of a plasma TV begins to permanently decrease from the moment you switch it on, or that they are very susceptible to screen burn-in from static images such as channel logos? Possibly less well known is that the contrast ratio of some brand new plasma TVs can, in a brightly lit room, fall to a level that, were it a CRT TV, would be classed as irreparably faulty.

Avoiding the rubbish

Basically the plasma market can be divided into two categories; the big brand name flagship models and the 'cheap s**t'. Sadly the market is awash with unknown brand 42-inch plasmas with bargain price tags to make your Barclaycard leap spontaneously out of your wallet. These models will have a resolution of 640 x 480 pixels, which is native 4:3 stretched to widescreen and too low to accurately display 625 line broadcast TV. Grim contrast ratio and brightness figures are the norm here, and the most basic video processing is likely to show more artifacts and digital banding than a dot-matrix printer. Worse still, they will burn-in every channel logo or PS2 game you play, and have a half-life (time to diminish to half brightness) of just 8,000-

10,000 hours – that's about three years of average viewing.

In the other camp, you have the pinnacle of TV technology; drop-dead gorgeous pictures in a sleek, stylish hang-on-the-wall package. The difference is, of course, the budget. The top crop of plasma TVs from Pioneer, Philips and Sony boast at least 1,280 x 768 HD resolution and all the

The plasma market can be divided in two: the flagship models and the cheap s**t

necessary DVI or HDMI connectivity to back it up. They have hi-tech video processing to emulate the smoothness of CRT and superb brightness and contrast ratios. Each incorporates an array of software to reduce screen burn by subtle image-shifting, and some of the latest panels boast a 50,000 hour half life.

Size-wise, plasma TVs are only really viable to manufacturer upwards of around 32 inches although the race is on for ever larger models, and 60-inch-plus screens are already available. As long as you choose a plasma TV with your head and eyes and won't be tempted by a bargain basement cheapie, there really is nothing to beat a big screen plasma TV as an all-round paragon of home electronic technology.

When money is no object, top-spec large screen plasma TVs offer a heady mix of stunning picture quality, flat panel convenience and serious peer-group respect. A top-of-the-range plasma TV from a leading brand name is going to set you back at least £2,500-£3,000 and nearer £4,000 to £5,000 for a 50-inch model, but the step up in performance over basic, low-cost plasmas is vast. Colour, brightness and contrast approach that of good CRT TVs, and spending this much assures you of HD-compatibility and connectivity that will see you well into the future.

Recommended product
Pioneer PDP 505XDE £4,500



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Future TV tech

A number of new display technologies are set to revolutionise the future of the humble TV. And some won't...

OLED

Organic Light Emitting Diode displays offer all of the benefits of a traditional LCD display but each pixel radiates its own light. The main advantage is that you no longer need a backlight as in traditional LCD TVs, massively reducing power consumption and making the screen considerably thinner.

Sanyo and Kodak have jointly developed this technology, mixing the former company's expertise in TFT LCDs with the latter's organic electroluminescent technology. Unsurprisingly the first real OLED devices will be designed for the mobile phone and digital camera markets, but larger scale displays are also on the drawing board. The seriously slim designs could make hang-on-the-wall TVs no deeper than an oil painting.

SED

Surface-conduction Electron-emitter Display is an evolution of good old CRT technology into a flat-panel form. Co-developed by Toshiba and Canon, SED collides electrons with a phosphor-coated screen to emit light. Tiny electron emitters, like a miniature CRT tubes, are embedded between two glass layers each driving a single pixel.

The advantage is that you get the super high brightness and greyscale of CRT technology in a flat panel format, while neatly sidestepping the slow pixel refresh rate of LCD TVs or the ever diminishing brightness of plasma technology. SED TVs could appear as early as this year.

3D LCD

3D TV could become a reality in the not too distant future, and much of the research has been done at Sharp's UK R&D facility. The company already produces 2D/3D monitors that use a clever barrier system on the LCD substrate that creates different viewing zones for each eye. Sit in the hot spot in front of the monitor and you're rewarded with a true 3D image with an extraordinary perception that extends out towards you and deep behind the monitor.

On the downside, there is really only one hot spot where the effect works, so it's not exactly sociable, and the image needs some heavy processing power to split it into two independent zones.

3LCD

This system improves on a standard colour-filtered LCD by using three individual panels for red, green and blue. The projected light is split into its three component colours using dichroic mirrors and fed through the dedicated panels. The image is re-assembled into full colour using a prism, and projected either on to the TV mirror (in rear-projection models) or out on to a screen.

The key advantage is that light efficiency is excellent, meaning a brighter bolder picture, and colour rendition can be far more accurately controlled. This gives rise to good greyscale results meaning more colours are actually visible.



The projector option

If you want really big screen home cinema, nothing is going to leave your friend's jaws hanging quite like a good projector. The latest DLP and LCD projectors are more than capable of producing crisp 72-inch-plus images in a darkened room, and if you feel like a little excess you can always zoom out so the image fills your entire wall.

So what's the catch? Well, quality projectors are going to set you back £2,000 or more, plus you need a good screen to get the best results, and the image all but disappears if someone opens the curtains in daylight. Moreover, while the thought of having a screen to match the local multiplex might be appealing, the resolution of even DVD soon begins to show its limits if you go much larger than an 80-inch image size.

The technical issue of brightness really precludes a projector being your main source of TV viewing as it is impractical (and unhealthy!) to shut yourself in complete darkness to watch the soaps on a day-to-day basis. For dedicated movie watching on the other hand, they simply cannot be beaten for scale and impact. If budget allows, go for a direct view TV *and* a projector – adding a motorised screen to drop in front of the TV for some serious kudos. The DLP projector above produces a gorgeous picture on screen sizes up to 100 inches and won't break the bank at around £1,800. It's extremely quiet, has a built-in lens shift to save having to use picture damaging keystone adjustment and it has more picture enhancing controls than a Hollywood mixing desk.

Recommended product

Optoma ThemeScene H57 £1,800

Which Big TV?

CRT

Plasma

LCD

DLP

	CRT	Plasma	LCD	DLP
Ideal screen size range	14 to 32-inch	40 to 60-inch	14 to 30-inch	45-inch-plus
Relative cost per screen inch	Low	High	Moderate	Moderate
Brightness	Very good	Average	Good	Excellent
Contrast	Excellent	Good	Average	Excellent
Picture motion	Very good	Very good	Average/poor	Excellent
Power consumption	Low	High	Low	Moderate
Screen burn-in	Possible	Yes	No	No
Viewing angle	170 degrees	170 degrees	130 degrees	140 degrees
Progressive scan	Optional	Yes	Yes	Yes
HD compatible	No	Optional	Optional on large screen	Optional
On board sound	Good	Fair	Poor/fair	Very good
Operational noise	Low	Low/moderate	None	Moderate
Possibility of dead pixels	No	Yes	Yes	Yes
Longevity (on average use)	10-12 years	6-8 years	8-10 years	3-4 year bulb life
Style temperature	Tepid	Ice cool	Cool	Pretty chilled

Note: All comments are based on the relative market average, and individual models may be better or worse than stated for any given parameter.

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

WIN!

A 42" plasma

Have you ever dreamed of an intelligent home, which brings together the latest in home technology with touch screen controls at your fingertips to satisfy every whim? Smartcomm is one of the UK's leading custom installers of audio-visual technology and a pioneer of the growing trend for high quality engineering consultancy, which offers consumers true 'manufacturer-independent' advice about complete home technology solutions. These include: Home Cinema, Multi-Room Audio, Scene Lighting, Wireless Internet and Email, Heating and Air-conditioning and Security.

Your home can be a haven of comfort and luxury. Imagine watching your favourite movie whilst relaxing in the bath; peace of mind with CCTV control which you can even view over the net whilst away from home. Or losing yourself in a film watched from your very own state-of-the-art home-cinema. To make these dreams a reality, Smartcomm offers a unique "one-stop" service, to project manage your home technology needs, no matter how great or small. With over 10 years experience, a team of highly specialised engineers and our trusted supplier networks,

smartcomm
integrating technology with vision

Smartcomm provides complete turn-key home automation solutions covering design, supply, installation and maintenance. The company's portfolio of high-profile builds includes the Million Pound Property Experiment and Southampton Football Club.

A highlight of the Smart Home Show for home entertainment enthusiasts will be the Smartcomm Live Demo Room Experience, where visitors will be able to get a first look at the all-new £17K projection screen from brand leader Fujitsu. It will include 5.1 surround sound and living control mood-lighting to give consumers the full sensory experience.

Smartcomm have teamed up with Fujitsu to offer Digital Home readers the chance to win Fujitsu's best selling home cinema screen, the P42VHA31WVGA Plasma. Visit stand 3050 at the Smart Home Show or see: www.smartcomm.co.uk

To enter
log on to:
www.digitalhomemag.com/competition
Closing date:
5th May

FUJITSU

KEY FEATURES

- ▶ 16:9 aspect ratio
- ▶ Contrast ratio 3000:1
- ▶ Brightness: 1000 candela/sq metre
- ▶ 852x480 pixels
- ▶ 1.07 billion displayable colours
- ▶ AVM (Advanced Video Movement)
- ▶ Dims: (HWD) 642x1037x85mm (not including projection portion)

Smartcomm is a member of CEDIA the custom electronic design and installation association.



WIN!

A plasma TV Cabinet

Picture House
Plasma Screen Cabinets



**ILLUSION CABINET
WORTH £2,850!**

To enter
log on to:
www.digitalhomemag.com/competition
Closing date:
5th May

OK, so you love your big, shiny plasma screen. But let's face it, plasmas are not so attractive when there's nothing playing on them... and they can ruin your carefully planned interior style statement.

Picture House Cabinets, launched in 2004, is the UK's leading designer of Plasma TV screen cabinets. The company specialises in hand-crafted cabinets which allow you to hide away your plasma screen when you're not watching it - and when you do want to watch TV, simply press a button on the remote for the screen to glide into place at a perfect viewing height. No more black hole in your decor, no messy wires. When you've finished watching TV just press the remote and the TV magically disappears inside the cabinet.

Digital Home readers can win an Illusion Plasma TV Cabinet - worth £2,850. The "Illusion" cabinets are in a classic style with a variety of hand-made grilles (solid brass, chrome, aluminum,

wood) or solid panel designs and are also available in cherry, walnut, maple, oak, or painted to match décor. For further info, visit stand 3432 at the Smart Home Show or see: www.picturehousecabinets.com



Brand new at The Smart Home Show will be the 'Firelight' cabinet (patent pending), where the TV screen resides snugly inside the ultimate focal point of your room - the fireplace.

IP Video Surveillance Solution

See for yourself **anytime** - anywhere

Brettcom are pleased to announce the arrival of the *Smartvue* product range into the UK.

Smartvue S2 is the world's only self-configuring and self-optimising wireless digital IP video solution.

Smartvue S2 offers world-class wireless IP video surveillance solutions for homeowners. The patented *Smartvue S2* uses 1-Click surveillance technologies to enable 30-minute installation by almost anyone in almost any size home - all without wires. Users simply place up to 10 cameras anywhere in their home, plug in the wireless digital video recorder into their PC or network and turn it on. The system automatically finds each camera, configures it, optimises the signal, and then locks it to the recorder to prevent signal hacking. The user can then make simple settings such as notification on motion detection (for example a back door opens after 8pm and you would receive a cell phone text message with or without attached image of the intruder. You can remote access from a PC or web enabled mobile phone live view. The system records DVD quality video and audio to its own built-in Linux DVR, which connects directly to any network, or PC - with no IT set-up issues. Unprecedented simple installation, industry leading technologies, and unique design make *Smartvue S2* the smart surveillance choice for the home security and video surveillance market.

Contact Brettcom Sales now on 01484 649905

or email sales@brettcom.co.uk



R&R

REVIEWED AND RATED



DIGITAL HOME STAR RATINGS

★ An uninspiring, seriously flawed product.

★★ Performs adequately, but big shortcomings.

★★★ A decent, dependable solution, though hardly innovative.

★★★★ Well executed and innovative. Recommended, even if not top of its game.

★★★★★ One of the best in its class. Highly innovative. Superior performance.

A reference product that exceeded all of our expectations in quality, performance, value and innovation.



Any product that, though maybe flawed, offers fantastic value for money compared to similar products.



Humax LGB-26DTT

"The flesh is like a badly applied fake suntan and as for the uninspiring stand we've seen more attractive Gothic gargoyles." - page 40

THE LATEST REVIEWS, THE BEST WRITERS

Below are the finest technology journalists in the kingdom. This month: we asked these great minds to recommend their favourite online radio station.



IAN CALCUTT
Former editor of *Home Entertainment* magazine.
Woxy - fantastic indie and alternative rock from Cincinnati.
www.woxy.com



DAN GRABHAM
Dan is reviews editor of our new sister publication, *Computer Upgrade* - issue 1 out now!
Triple J - Australia's answer to Radio 1. www.abc.net.au/triplej



GEOFF HARRIS
Geoff witnessed the birth of photography and now edits *Digital Camera Shopper*.
The African Hip Hop Radio show.
www.africanhiphopradio.com



SAM KIELDSEN
Sam specialises in consumer electronics, though his real passion is for the written word.
BBC Five Live - whenever the cricket's on. www.bbc.co.uk



JEREMY LAIRD
We've poached Jeremy from the other side of the office where he's knocks out technical copy for our sister title *PC Format*.
He's only ever listened to Radio 4.



SHAUN MARIN
Shaun 'Smartphone' Marin has edited numerous home entertainment magazines.
Alt Country - cosmic US music from Holland. www.altcountry.nl



ALEC MEER
Deputy editor of *PC Format*, Alec owns no fewer than seven PCs.
Brainwashed - wilfully weird and, often, absolutely terrifying US station. www.brainwashed.com



RICHARD STEVENSON
Last only for alphabetical reasons, 'Parker' used to edit *ERT Weekly*.
Hard Radio - tough, loud, and red-necked heavy metal cyberstation from Texas. www.hardradio.com

25 hot new products reviewed and rated

Sagem Axiom HD-D45 **36**

Linn Kinos **38**

Humax LGB-26DTT **40**

JVC LT-26D50BJ **41**

Sony XDR-M1 **42**

Sharp DV-HR300H **43**

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Pure Sonus-1XT **46**

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Mobinote DVX-Pod 7010 **54**

D-Link DWL-G810 **55**

Rotel RSX-1056 **56**

Six of the best Media Center alternatives **58**

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- ▶ We are the only magazine to offer the complete mix of entertainment technology solutions.
- ▶ We only recommend equipment we would spend our own cash on.

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Rear Projection TV

Sagem Axium HD-D45

You want a huge high definition-ready screen but don't have the budget for LCD or plasma. Sagem's DLP rear projector is batting its eyelids in your direction

KEY FEATURES

PAL/SECAM compatible; HDTV compatible; Faroudja DCDi; Nicam stereo; Virtual Dolby Surround; analogue TV tuner; Teletext

HARDWARE 45-inch 16:9 DLP rear projection screen; 1,280 x 720 resolution; 2x 30W speaker output **CONNECTIONS** 3x Scart; DVI-D input (HDCP); component video input; 2x S-Video inputs; 2x composite video inputs; VGA input; 4x analogue stereo inputs (RCA); analogue stereo input (3.5mm); optical digital audio input; analogue stereo output (RCA); optical digital audio output; headphone jack

DIMENSIONS

W1,297 x H791 x D372mm

When it comes to display technologies, rear projection is usually viewed as the backward and quite possibly in-bred cousin of the likes of plasma and LCD. The criticisms are many: while the new flat panel aristocracy is trim

and tidy around the waistline, rear projectors wear the kind of bulk more often associated with a

sumo wrestler. What's more, the picture they create is wonky and, frankly, a bit cack, while their connectivity is rubbish.

But over the past few years we've seen the emergence of a new breed of rear projectors. The technology dictates that this kind of screen will never rival the litheness of a plasma TV, but darn it if some of this lot don't actually look pretty attractive. And in terms of performance, even more striking improvements have been made, mainly due to manufacturers' adoption of superior DLP projection technology.

Rear projector pluses

This evolution is characterised by rear projectors like this one, the French designed Sagem Axium HD-D45. Sagem may not be a particularly well known or prestigious brand, but this 45-inch model looks fantastic, even without its stand (a £350 optional extra). With a depth of only 372mm, it isn't particularly large for a screen in its size bracket, and it boasts a glorious piano black frame. Believe it or not, Sagem is so keen on maintaining the lovely shine of this finish that it supplies a couple of pairs of white gloves with each set. These, of course are, to be worn while you and a helper lift your newly purchased Axium out

of its box, so preventing grubby paw prints from spoiling the sheen.

An excellent range of connections is provided on the side and rear panels of the Axium. Of chief importance to those interested

in high definition compatibility is the DVI input, which is fully HDCP compliant; this means that

it will work both with the current crop of HDMI and DVI outputting DVD players and with any future devices that use all-digital video outputs – including HDTV receiver boxes. The DVI connection also has its own companion stereo audio input.

Other connections include a VGA PC input (located at the side), component video input, a trio of RGB capable Scart sockets and digital audio in and outputs. We really can't say that there is anything important missing, apart from perhaps an HDMI input, which would be nice if only for the sake of completeness.

Sagem is so keen on maintaining the lovely shine of this finish that it supplies white gloves with each set to prevent grubby paw prints spoiling the sheen

The Axium isn't just a display – it's actually a television, and as such comes with an aerial input, an analogue tuner and peripheral features including Teletext and Nicam stereo. Granted, we were a little disappointed at the lack of a digital tuner to complete the setup, but adding an external Freeview box is hardly an expensive option these days.

Due processing

Wisely, Sagem has fitted some image processing technology in the reliable form of Faroudja's DCDi. Now a popular choice among consumer electronics manufacturers, DCDi scales-up video signals, increasing detail and sharpness while simultaneously de-interlacing to eliminate jagged edges and flicker. We tried it out briefly with the built-in TV tuner and were very impressed: a quick glimpse of *This Morning* left us open-mouthed at Philip Schofield's silvery locks, which had never looked so silky smooth.

DCDi also works well with higher quality sources like DVD (see Tested With) and games consoles, although we did find that the former exposed a couple of small flaws that are often associated with DLP projection technology. First, there's the infamous 'rainbow effect' caused by DLP's colour wheel. Although Sagem seems to have done a fine job of eliminating it in the main, we did notice the

odd occurrence here and there – but it's not a huge problem. The other is the occasional appearance of a motion artefact during quick horizontal pans; again, this is nothing too disruptive, but you notice it all the same.

Get past these niggles and the advantages offered by DLP are numerous. This is most notably reflected in the Axium's brilliant contrast range, which enables it to run the entire brightness gamut from deep black to piercingly clear white; just try replicating that on a plasma screen – it can't manage it.

Overall, we're incredibly impressed by Sagem's Axium screen. It's very easy on the eye – both in terms of casing and screen ability – it's able to accept HDTV, and boasts a picture quality that gives the current range of top LCD screens more than a run for their money. Speaking of which, it will set you back £2,000; for a 45-inch high definition display that sounds very reasonable to us. **SK**

CONNECT TO DENON DVD-2910



TESTED WITH... LAYER CAKE

The Axium takes to this stylish thriller's dark scenes like a duck to water, even to the point where you can distinguish a balaclava'd, ninja-fied Daniel Craig from the inky blackness surrounding him. A high end plasma couldn't manage that.



DIGITAL HOME



For Excellent contrast range; ready for HD; good connectivity; more affordable than a plasma or LCD

Against Some DLP side effects

Verdict A fantastic-looking, impressive and less costly alternative to plasma and LCD flatscreen displays.



It may look a little underwhelming, but the true quality of the Kinos lies in its powerful performance capabilities.



AV Pre-Amplifier and Controller

Linn Kinos

Integrated AV amplifiers have never been better, so this high-end pre-amplifier had its work cut out to impress. But impress it did...

KEY FEATURES

Decodes Dolby Digital 5.1, Dolby Digital EX, Dolby Headphone, Dolby Pro-Logic II (Music and Movies), DTS Surround, DTS 96/24, DTS ES Matrix and Discrete; adjustable lip synchronisation delay; 4x 12V triggers for operating projectors and screens; multiroom capability; convenience sockets under front panel **CONNECTIONS** 5.1 audio analogue inputs; 4x component video inputs; 2x Scart inputs; component video output; 7.1 audio analogue outputs **DIMENSIONS** W381 x H80 x D368mm

What kind of person decides against buying one of the most capable high-end home cinema integrated amplifiers on the market, and instead opts for a more expensive component-based system, with this Linn Kinos controlling operations? The kind of person who cares about absolute quality, that's who. The kind of person who isn't so easily placated when there are mere 'noises' coming out of their rear speakers. Who instead wants to be certain that those sounds – whether they be important effects in movies or music from high-resolution surround sound formats such as SACD – are exactly what the creator of the disc had in mind. Basically, any person interested enough in quality to buy *Digital Home* and with enough money to pursue their passion by investing £5,000 in an AV pre-amplifier.

Having said that, at first glance the Kinos is slightly underwhelming. Okay, so it looks pretty cool, but it doesn't look close to

five big ones worth of cool. You may well find yourself looking disappointedly at your new purchase, and having to explain to your partner exactly why you spent the cost of a round-the-world holiday on this unassuming grey box.

The good news is that the big bucks have been spent on the inside where

it really counts. The Kinos does a delicate balancing act very well: it manages to use computational brawn to control your system and make it easy to use, while also paying heed to audio and visual concerns by retaining the integrity of the source components that you connect to it.

Inside, a PowerPC processor takes care of all labour-intensive controlling and switching work. This pays dividends when it comes to the way the Kinos operates, and it really is a breeze to set up and use. The menu system is in depth but easy to get to grips with, and flexible rather than frustrating. If you have a compatible screen,

the Kinos can even output the menu in progressive scan, which is flash beyond the call of duty.

Once you've had the Kinos installed you won't even notice half of what's going on: just start up a source and the Kinos will handle the rest. Elsewhere, Sharp processors look after the audio side of things which Linn claims, far from being hampered by all the computational power on board, are more effective because of the presence of the PowerPC chip.

The Kinos offers a host of other user friendly features, such as instantly selecting the best surround sound format, giving you control over how fast the volume turns up, and pretty much everything you imagine a high-end system could offer. Plus, if multiroom is your thing, then the Kinos can feed and control four other zones around your home, or be incorporated into the impressive Knekt multiroom audio system.

The Kinos is obviously designed to be partnered first and foremost with other Linn

Price	£5,000
See it	www.linn.co.uk
Buy it	Radfords 0117 944 1010



components – there's even a one-button command in the menu to connect it with Linn's Unidisk players. Despite this, other manufacturers haven't been ignored; not only does the remote control have hundreds of other companies' commands built into its internal memory, but also connectivity is

The real surprise comes when you start spinning CDs. Playing *The 1967 New York Sessions* left us amazed at the level of emotion the Kinos brought to the party

spot on, with plenty of inputs and the right kind of outputs. While we particularly like the way the normally pretty useless composite video inputs double up as component ones – which in turn leaves room for some very handy Scart connections – we do think that on a product of this type

and price, people may expect some kind of HDMI provision.

In terms of audio quality there's nothing we can criticise the Kinos for – it's simply first rate all down the line. Partnered with some Linn amplification it offers one of the best movie experiences this side of the

Empire Leicester Square. The sound is big and bold, but still digs out subtle details in well-recorded soundtracks such as those of *Hero* or *The Incredibles*.

The real surprise comes when you start spinning CDs. The Kinos features the same two-channel processing as featured in some

of Linn's high-end stereo pre-amplifiers, making it one of the best stereo performances we've heard from a multi-channel surround controller. Playing Van Morrison's *The 1967 New York Sessions* left us amazed at the level of emotion the Kinos brought to the party.

Many prospective Kinos buyers will already be Linn converts, and need no persuading that it's worth the price tag. Once you get past the less-than-exciting styling, the Kinos should lure in a lot more to the Linn way of living. First rate. **SM**

DIGITAL HOME



For Comprehensive spec; excellent sound and picture; intuitive to use

Against Expensive, but doesn't have the four-figure looks to match

Verdict An incredibly well-thought-out home cinema controller that majors in top-notch audio.



TESTED WITH...

HERO

This stylish movie encapsulates everything the Linn is good at: a real grasp of the subtleties of surround sound, with lots of atmospheric rear effects, partnered with a strong grasp of the musical score and, when called upon, a firm hand with loud action sequences.

The Humax is high def-ready, comes with integrated digital terrestrial, and is inexpensive. So what's the catch?



TESTED WITH... SKY NEWS

The news channel's scrolling text looks clean and crisp, and free from the noise that often plagues digital TV, while the white areas of the picture shine out brilliantly. Detail from the satellite feed is actually very reasonable, but play some HD video and the complete lack of image enhancement technology becomes all too obvious.



26-inch LCD TV

Humax LGB-26DTT

Want to dump that bulky CRT in favour of a svelte LCD flatscreen, but think you can't afford it? Think again. Here are two low-cost solutions

KEY FEATURES

26-inch 16:9 LCD screen; 1,280 x 768 resolution; HD-ready; auto tuning; digital and analogue tuners; Teletext; picture-in-picture; dual screen; 16ms response time; 800:1 contrast ratio; 450cd/m2 brightness rating; PAL, SECAM and NTSC compatible; SRS WOW audio; 2x 7W speakers; Nicam stereo **CONNECTIONS** DVI (HDCP compliant) input; composite video input; S-Video input; component video input; 3x Scart; PC RGB monitor input; 2x analogue audio inputs; analogue PC stereo input; optical digital audio output; headphone jack

EXPANSION Common Interface; Smart Card; RS-232C

DIMENSIONS

W696 x H538 x D225mm

With CRT televisions boarding the express train to obsolescence, we're all looking to flat panel technologies - LCD in particular - for a replacement. And what you may not have realised is that LCD's biggest bugbear, its cost, is much less of an issue.

Take this 26-inch LCD TV from Humax. Admittedly £1,200 is still a great deal more than you'd have to shell out for a 26-inch CRT, but much less than it would have been a year ago. And you get a lot of LCD loving for your cash.

For starters, this TV proudly sports the new industry-standard 'HD-ready' logo. With built-in HDCP (built-in content protection) and a DVI input, it's got all the prerequisite

features to show high definition TV in all its glory once broadcasts begin next year. We've got all the ingredients for a great TV here.

Even without HDTV content, there are plenty of goodies to feast on. You've got built-

in tuners for both digital and analogue terrestrial TV, giving access to

Freeview channels, and a seven-day programme guide. The Common Interface slot gives you the option of watching even more repeats with Top Up TV. Motion blur almost doesn't exist thanks to the quick response time of the panel. Dark areas of the picture are deliciously fulfilling, colour gradation is fine, and the sound quality is pretty tasty if not quite as satisfying as the virtual surround of the JVC opposite.

All very impressive for the price. Guess what? There's a catch. What really makes a flat TV today is not the quality of the panel, but the technology that processes and enhances the picture before placing it on screen. This TV noticeably *doesn't* have any kind of image enhancement technology, such as the Wega

engine found in Sony displays or Philips' Pixel Plus. The result is that the picture quality doesn't come close to the levels of detail of JVC's similarly priced 26-inch model.

Worse is the box the screen comes in. The design is bland at best, and the quality of the build is pretty poor too. The flesh is like a badly applied fake suntan compared to JVC's glamorous efforts. And as for the uninspiring stand, we've seen more attractive gargoyles.

Ultimately, this is an inexpensive and future-proof flat panel TV solution that benefits from an excellent array of features. But mix in the poor build, bland styling and second-rate picture quality, and you're left with a bitter-sweet taste in your mouth. **SK**

Price	£1,200
See it	www.humaxdigital.com
Buy it	www.johnlewis.com

We're pleased to see that the connections include a DVI input.



CONNECT TO

SAMSUNG DVD-HD945 *Digital Home, Issue 22*

DIGITAL HOME



For Excellent connectivity; fantastic range of features; HD ready; affordable

Against Low-rent build quality and styling; no image enhancement technology

Verdict An inexpensive LCD but the design is naff and the screen risks relegation from the second division.

There's no doubt that it looks the part, but the JVC is going to be near useless in five years' time.

R&R



TESTED WITH...
KING ARTHUR
DIRECTOR'S CUT

The JVC gives a good account of itself with a high quality video source, and this DVD is no different. The drab scenery is replicated brilliantly, while the battle scenes don't have even a hint of blurring.

26-inch LCD TV

JVC LT-26D50BJ

You might expect that this 26-inch flat screen from home cinema stalwart JVC would trounce the Humax. But would you be right?

This is a gorgeous TV. You could call it plain. We call it superbly understated. While the combination of a glossy black frame with the silver stand and speaker panel is not exactly adventurous, you can't deny it doesn't work. Build quality is everything we'd expect from a brand like JVC. And with a depth of just a few inches this TV will fit in and look good more or less anywhere.

Things only get better. Plug it in and go through the simple set-up process, and behold a picture quality that's as impressive as the frame bordering it. The image is detailed, colour reproduction is accurate and, unlike many LCD screens, dark areas don't appear as poorly defined pits of murky blackness. And the bonus is the picture is good no matter the source. Games console, DVD, or the built-in digital TV tuner – you name it, the JVC will turn it into a pseudo-HDTV image.

It does this by JVC's homemade DIST image processing system. DIST, or digital image scaling technology, combines de-

interlacing with up-scaling to create a picture nearly as detailed as a proper high-def image. While the result ultimately doesn't quite equal the real thing, it's certainly a big step up from basic definition television. Although the

Humax opposite is a full blown HD screen, it misses this kind of processing. Even with HD content showing on this non HD screen, the JVC's picture is from another world in comparison.

Now a word of warning. In the future you might have a problem getting this telly to accept HDTV. The reason is this. Sky says its HDTV boxes will only output digital video. So, if you decide to upgrade to Sky HDTV when the service airs next year, you will almost certainly need a screen with DVI or HDMI inputs to see anything at all. Both connections are missing from the JVC. The component input is HDTV capable, but whether or not this will become a viable option remains to be seen. You have been warned.

The JVC is a TV for the moment, but not necessarily for tomorrow. The design is nice,

Can you see the obvious mistake here? No digital video connects...



there are features galore and performance is excellent. But in our book it's inexcusable to ignore digital video connects on a digital screen – especially when second-tier brands like the Humax are HD-ready. Otherwise the JVC is easily a five-star product, but we don't give more than three stars for these omissions. What's the point in not buying an HD-ready screen? **SK**

DIGITAL HOME



For Detailed, well defined picture; wealth of features; attractive styling

Against Not HD-ready, which is completely inexcusable with a digital TV

Verdict Not the most future-proof of TVs, but a fine combination of technology and features.

Price £1,700
See it www.jvc.co.uk
Buy it www.jvc.co.uk

KEY FEATURES

26-inch 16:9 LCD screen; 1,366 x 768 (WXGA) resolution; DIST image processing; BBE audio; auto tuning; Teletext; picture-in-picture; multi-picture; 800:1 contrast ratio; 500cd/m2 brightness; digital and analogue tuners; PAL and NTSC compatible; 2x 10W speaker output; Nicam stereo
CONNECTIONS 2x Scart (both RGB capable); component video input; S-Video input; composite video input; analogue RGB PC input; 4x analogue audio inputs; analogue audio output; headphone jack
EXPANSION Common Interface
DIMENSIONS W703 x H491 x D107mm

CONNECT TO

EVESHAM EBOX Digital Home, Issue 19

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

DIGITAL HOME 41

It's a good-looking beast, certainly, but it's bringing nothing to the market, and it costs way too much.



TESTED WITH...
BBC RADIO 5 LIVE
 The range of BBC stations is more than enough to test the range of any DAB radio. We found that 5 Live was the most taxing, with its combination of speech and sport clips. The Sony came through with flying colours, however.

Portable DAB Digital Radio

Sony XDR-M1

It's certainly the most chic pocket DAB radio we've seen, but is it the familiar Sony story of style over function?

KEY FEATURES

Both DAB and FM stations; 40 presets; up to ten hours playback; takes AA batteries

HARDWARE DAB and FM tuner; dot matrix display; in-line remote; Sony headphones

CONNECTIONS 3.5mm headphone jack

DIMENSIONS W60 x H80 x D22mm

Common perception has it that Sony has lost its way. Despite the company recently employing a Brit as its MD, such new measures don't have a retrospective effect. In any case, he's got his work cut out. This pocket-sized DAB radio may look the part, but sadly this is backed up with awkward usability.

That's not to say it's not a very good radio – indeed, quite the contrary. It's just it's not the usual quality we expect from Sony.

Let's start with the display. The inverse-LCD display isn't backlit by default; you have to press a button to illuminate your listening. Because Sony has made the display inverted – the text on the screen appears light upon a dark background – it's actually really hard to see. Even at maximum contrast, any kind of sunlight puts paid to listening pleasure.

The other really disappointing aspect is the main joystick. It just isn't definite enough. We found it most annoying when altering the contrast of the screen. All we had to do was to move the joystick up and down, but it took a

very fine touch to push it in the right way without pressing it down as if we were to click 'OK'. Between stations is also difficult.

Despite these design flaws, there's no doubt that the Sony DAB looks fabulous. We took the XDR-M1 to Twickenham to test its function on the move. And a portable certainly comes

into its own in such a location. What most impressed us after the trip was the remote. We found it needed a screen, but the remainder of the remote functions are superb, exactly the kind of build quality Sony expresses with its MiniDisc portables. This is more like it.

The shell of the XDR-M1 is – functional niggles aside – a work of art. The broad silver buttons are tremendous. All they do is enable you to access the menu or switch the unit between FM and DAB modes but, even so, they're quite handy. However, the process of scanning for new digital multiplexes (groups of DAB stations) is rather complex. Portable DAB radios are bound to be taken up across the country, and they should enable you to

switch between the different station areas a lot more easily. Of course, this won't impact on the national multiplexes, but it will mean that you have to go through a lengthy scan whenever you leave a locality. This can never be completely sorted out, but some element of auto-scanning so stations can be picked up as they become local would be preferable.

Although it's £25 cheaper, the Sony really isn't a match for the Pure Pocket DAB or the similarly-priced Philips DA1000. Both of these devices have far less style, but far more function. Digital radio might finally be taking off in the UK, but at this physical size the technology needs far more convincing arguments for existence. **DG**

Price £130
See it www.sonymstyle.co.uk
Buy it www.amazon.co.uk

CONNECT TO SENNHEISER MX500 IN-EAR HEADPHONES

DIGITAL HOME



For Sublime looks; well-designed remote; great sound

Against Poor main control; still expensive for a radio; awful screen

Verdict Despite its flaws, we like the XDR-M1. But we need cheaper DAB portables, not more expensive ones.

If you can ignore the piddly hard drive capacity, you can pick up a capable PVR for only £350.

R&R



Personal Video Recorder

Sharp DV-HR300H

If you haven't got a hard drive somewhere in every room of your house, you're not living properly. Start making amends with a hard disk video recorder

It's hard to fight off preconceptions for a £350 piece of technology that carried a £700 price tag upon its release just under a year ago. Surely there's something wrong with it?

It becomes rapidly obvious that the DV-HR300H is showing its age.

Geriatric, it's not, but its paltry 80GB hard drive will see its match in the next generation of MP3 players. And the lack of DVD+R and DL compatibility, at just 2x write speeds, makes it something of a one-wheeled bicycle. A 200GB hard drive and all-format support would make for a different story and, doubtless, an entirely different price.

A quick run-down of what the Sharp is capable of reawakens our lust somewhat. Recording to hard drive or DVD? Yes. Dubbing between the two? Yes. Basic video-editing functions to remove bothersome adverts? Yes. Automatic chapter creation in your recordings? Yes. Recording from auxiliary inputs? Yes. And what about time-shifting? Well, yes, but the recording happens only from the moment you press 'pause', so you can't

instantly rewind as with Sky+. Still, your £1,200 Media Center PC is entirely justified in looking a little ashamed of itself right now.

It's baffling, then, that all this progressive goodness is built around an interface

apparently ripped from a late-1990s VHS recorder. Menus are about as intuitive as a Boeing 777

cockpit control deck. And a huge oversight is that the auxiliary Scart port isn't RGB, so recordings from a satellite set-top box will be at the unhappy lower ground of S-Video.

A shame, because at its highest setting the quality of the recordings is exceptional. We're talking full 720 x 576 DVD resolution, around 20 hours of which you can store on the hard drive. This goes up to 100 hours if you resort to the lowest setting, which halves the resolution's width and presents you with blocky, blurry video.

There are some impressive functions to stave off the threat of a maxed out hard drive, notably automatically altering resolution and bit-rate to ensure you don't run out of space

for a scheduled recording. An hour of recording can be transferred to a disc in around five minutes, so long as you originally made the recording in 'high speed dubbing priority mode', which means you can't edit it at all. Otherwise, you're looking at around 20 minutes to fill a disc.

So, there's a lot to like here, and the Sharp's myriad functions are far better integrated into the familiar confines of a set-top box and remote control than the youthful incompetence of the Media Center PC concept. There's a lot of room for improvement though, with that non-RGB auxiliary Scart, and the low-end hard drive left standing around pathetically in the dust of the competition. **AM**

KEY FEATURES

80GB hard drive; TV tuner; DVD playback & recording
CONNECTIONS AV input & S-Video; DV input; stereo output; optical output; co-axial audio output; RGB Scart; S-Video Scart; component output; antenna in/out
DIMENSIONS
W430 x H323 x D59mm

Price	£350
See it	www.sharp.co.uk
Buy it	www.amazon.co.uk

DIGITAL HOME



For Everything under one roof; high quality recordings and DVD playback.

Against Crude menus; dated drives; a few baffling omissions.

Verdict You may well be happy at this price, but we'd strongly advise holding out for a bigger and better box.



TESTED WITH...

TV BROADCAST, BBC LOOK AROUND YOU

The second series of BBC's sublime retro science spoof, aired in March of this year, is a visual and comical treat and a fine test of how the Sharp's recordings can replicate all those unearthly browns and greys of 1970's British TV.

CONNECT TO SONY STR-DB795 AMP *Digital Home, Issue 22*

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

DIGITAL HOME 43

Okay, it's rubbish with games, but just check out how small it is! It's only 15cm wide...



TESTED WITH...
3DMARK03
 The definitive 3D benchmarking app proved a little too much for this machine's processor and graphics chip: not all the tests would run, and the final score was a piffling 110 3DMarks. So that rules out *Doom 3* then.

Compact PC

Mini PC UK Pentium M PC

It wears its "smallest PC in the world" badge with pride, but is there any other reason to spend your money on it?

KEY FEATURES

GPS receiver; Bluetooth
HARDWARE 8-inch 16:9 TFT monitor (touchscreen); Intel Pentium M 1.7GHz; 512MB RAM; 80GB hard drive; DVD+/-RW drive; Intel Extreme Graphics; mouse

SOFTWARE

Windows XP Professional
CONNECTIONS Firewire; 3x USB 2.0; 10/100 Ethernet; VGA output; mic input; line output; headphone output; serial port; parallel port

DIMENSIONS

W148 x H41 x D254mm

Citygizmos claims that this is the smallest PC in the world and, having seen the device in the flesh, we have little reason to doubt its word. We can refer you to our Key Features box if you want to know the exact dimensions, but a comparison might give you a better idea.

"The size of a best-selling novel!" gasps the product's website, without specifying paperback or hardback (and why "best-selling" anyway?). As you might suspect, if this PC is the size of a book, it's a hardback – not quite as impressive as a paperback, perhaps, but noteworthy all the same, especially when you consider the reasonably powerful set of components lurking within.

Powered by a Pentium M processor running at a respectable 1.7GHz, and in possession of 512MB of RAM, this miniature

marvel is well geared up for basic PC tasks like word processing, email and web surfing. A spacious 80GB hard disk means that you could even use it as an in-car music server, even for high quality uncompressed tracks.

There isn't a great deal of graphical power on hand, which isn't surprising given that there

is no space for PCI Express or AGP slots here, and all the processing has to be done by a chip on the motherboard. The machine struggles with anything slightly demanding in this area, and complex 3D games are out of the question.

A handful of notable accessories come supplied, the most interesting being an 8-inch LCD touchscreen. Unfortunately the touchscreen wasn't working on our sample, but as a display it does the job reasonably well. It's worth noting, however, that it's got a 16:9 aspect ratio, but because the processor doesn't support any widescreen resolutions you end up with a stretched out picture.

Luckily, the monitor is an optional extra, and unless you're planning on setting up your small PC in a place where a mouse isn't practical (inside a car, for instance) there's really no need to buy it. Other peripherals include Bluetooth and in-car power adapters.

Price £915 (£499 without monitor)
See it www.minipcuk.com
Buy it Mini PC UK, 01403 275527



Not the most impressive connections; but where would they go?

So we've established that it's a perfectly decent PC (unless you're a gamer) and that it's very small. Now all we need to do is work out just what you're supposed to do with it. Unless you fancy mounting one in the dashboard of your motor, we don't really see what advantage a device like this has over a laptop. The Pentium M model costs £915 with the touchscreen, and you could buy a lavishly equipped notebook for that. You'd get a bigger screen, decent graphical power, a battery and built-in wireless networking. The only plus point the Mini PC has in its favour apart from the size, is its GPS feature.

If you don't have a specific need for a fully functioning home computer this tiny, we wouldn't recommend the Mini PC over a laptop. So, unless you're desperate for a hardback book-sized PC, you might be better off spending your money elsewhere. **SK**

DIGITAL HOME



For Tiny dimensions; does most things a full-size PC can do

Against Not as flexible or mobile as a notebook; not cheap

Verdict A decent diminutive PC, for those few people who would prefer this kind of thing to a laptop...

CONNECT TO ADI MICROSCAN I700 MONITOR *Digital Home, Issue 17*

Spot the difference: the Mustek PVR-H140 and the Goodmans GPDR40 are essentially the same machine.

R&R



Portable Video Recorders

Mustek PVR-H140 and Goodmans GPDR40

Portable video players are like mushrooms in the spring in the Far East. Now they're coming here

A 40GB personal video recorder for around £200? Sounds like a steal to us. The solution is one of the many cloned Far Eastern imports that are invading the UK's online electronic stores like some kind of disease. The question is: are they any good? Our review here is based on the Mustek PVR-H140, but our findings also apply to the Goodmans GPDR40, which is essentially exactly the same product - only the badge is different.

While the Mustek is rough around the edges, it's certainly good value for money. If you're simply after a workman-like video playback device with plenty of room for music and photos, you won't go wrong. Be warned, though, it's built down to a price. For example: turn it on and you sometimes never get further than the welcome screen. The operating system hangs as often as a Pygmy Pipistrelle bat. The solution is a forced restart using a paper clip, in the manner of old Apple Macs. It's got - how can we put it? - character.

Once past this glitch, the big colourful kindergarten menu icons are impossible to miss. Shame, then, that the screen is rather less eye-catching. Compared to similar devices from Archos and Creative, the screen is muddy, lacking both crispness and resolution. On the positive side, the screen is a good size at 3.6 inches, and doesn't drain the battery life unduly. The inclusion of an SD card slot

is also handy for photographers.

Copying and playing audio files is easy enough, with the usual support for WMA and MP3 files. Sound quality is respectable but unspectacular, if truth be told. You'll need to compensate for the lack of equalizer functions by plugging in some decent headphones. The Mustek is better when it comes to recording TV and video. It's great to have such flexibility on a £200 player, especially as you can time the recordings and choose the quality settings. Playback on medium and high settings is fine, the screen notwithstanding.

Price	£199
See it	www.mustek.co.uk
Buy it	www.dabs.co.uk
Price	£230
See it	www.goodmans.co.uk
Buy it	www.amazon.co.uk



Okay the one on the right has a yellow bit, but those connections look similar...

If you must have a PVR, but can't justify blowing £500, the Mustek makes sense. If video recording plays second fiddle to photo display and audio, we'd still pay the extra for the slicker Archos Gmini 400. **GH**



TESTED WITH... LITTLE BRITAIN

Recording the nation's favourite off the TV was simplicity itself, and with 40GB on tap, you can afford to up the quality settings. While the screen won't win any prizes, it's fine for casual replays. The colours and brightness of the screen are fine, it's the lack of sharpness and resolution that niggle...

DIGITAL HOME



For Portable video recording for chump change; plus music, photos and games

Against: Muddy screen; idiosyncratic OS; too chunky to squeeze into your jeans

Verdict A sound budget portable video recorder, let down by dodgy screen and lack of finesse.

KEY FEATURES

Digital audio playback (MP3, WMA, WAV); video recording and playback (MPEG-4, DivX); photo playback (JPEG, BMP); calendar, games **HARDWARE** 40GB hard disk; 3.6-inch colour screen **CONNECTIONS** USB 2, AV in/out, SD/MMC slot **EXPANSION** USB 2 **COMPATIBLE WITH** Windows Me and higher; Mac OS 9 and higher **DIMENSIONS** W110 x H80 x D30mm

CONNECT TO SENNHEISER PXC 250 NOISE CANCELLING HEADPHONES *Digital Home, Issue 23*

Pure Digital has stuck to the same design aesthetics – which is good – but has added speech technology – which is odd.



TESTED WITH...

BBC RADIO 6

One of the best digital stations available, Radio 6 plays a choice mix of great rock and pop that gives a good idea of the Sonus' capabilities. We were impressed by the clarity of the reception and the punchiness of the delivery, aided by the radio's beefed-up bass functions. The Sonus really is a leap forward in sonic quality from the earlier Evoke radios from Pure.

Digital Radio

Pure Sonus – 1XT

You'd expect to hear voices from a digital radio, but the latest model from Pure really does speak to you, as well as doing a lot more besides. But is £120 pushing it?

KEY FEATURES

HARDWARE DAB radio functions with Band III reception; dual independent alarms with station or tone selection; hi-fi speaker with bass reflex port (XT-1 add-on speaker optional); volume equalization technology; 'Snooze Handle' **SOFTWARE** iVOX speech technology **CONNECTIONS** Digital output; stereo output; headphones; auxiliary speaker; aerial **NETWORKING** USB 2.0 **DIMENSIONS** W210 x H175 x D110mm

As Apple is to digital music players, Pure is to digital radio – a pioneer, a first mover, a charismatic brand that shouts “accept no substitute”. Faced with competition from every direction, Pure is fighting back with the Sonus-1XT. And it's very cool. According to Pure, the Sonus is the first digital radio with “unique iVOX voice feedback technology” – in other words, it speaks to you. The Sonus tells you what DAB stations are available in an optional female/male voice that manages to sound soothing, sexy and imperious all at the same time. This means you don't have to squint at the radio's LCD as you change channel. It's a bit belt and braces, however, as the Sonus' LCD is a lot easier to read than the older Evoke's. Another bonus feature is the Snooze Handle. Grab hold of the handle and the radio tells you the time (there's a more conventional radio alarm function as well, and the 'voice' talks you through how to set it up). While these touches are neat, we've been enjoying digital radios without them speaking to us for quite some

Price	£120
See it	www.pure-digital.co.uk
Buy it	www.johnlewis.com

time, so we're hardly talking life or death stuff here. More essential is the sound, and we're pleased to say that the Sonus is one of the best sounding digital radios we've heard. Even though our review sample only had one speaker, it managed to sound beefier than our battered stereo Evoke 2, and certainly has more options. Bass is punchier, too, making the Sonus a much more convincing performer than its predecessors. There's even a widget in there called Volume Equalisation Technology (VET), which monitors the audio levels of stations so you can jump between one and another without having to change the volume.

We'd recommend coughing up the extra for the second speaker, unless you mainly intend to listen to it through headphones. While you can certainly get more strikingly designed digital radios, the 1XT looks great, with Pure's trademark maple cabinet, and feels as if it's built to last. It also comes with a nine-event timed record function for use with MiniDisc or other recording device, and a USB

jack to enable you to download updates from the net. The clock automatically updates itself for British Summer Time, too.

While all of these extras are good to have on a radio, some cynics would say they're just shoehorned in to justify the price. Pure is going to have to work hard to convince people that they really need those functions, especially when the £120 asking price would buy you a cheap mini hi-fi that included DAB functionality. We'd argue that the improved sonic performance still makes the Sonus worth the money, but we wouldn't be at all surprised if market pressures mean that Pure brings out a stereo version for roughly the same money, six months down the line. **GH**

DIGITAL HOME



For Great sound; great looks; voice/alarm innovations and lots more besides

Against £120 still seems quite a lot for a digital radio with only one speaker

Verdict Unless you're an oversleeper with lots of cash, you'd be wise to wait for the two-speaker version.

CONNECT TO PHILIPS GOGEAR RECORDING JUKEBOX

The H30a is petite enough to be hidden away, but it doesn't live up to its high definition boast.



DLP Home Cinema Projector

Optoma ThemeScene H30a

Can a product be 'fully high definition compatible' with only 480 lines of resolution? Sadly no, but the new ThemeScene projector can still create good looking results

Great progress is being made in giant rear-projection TVs using DLP but there are substantial gains in standalone projectors too. Optoma's ThemeScene H30a (the 'a' stands for 'advanced') costs little more than £1,000 but carries some of the latest DLP technology.

You could call it a pseudo luxury model. The basic specs are strong despite how tiny the projector is. The contrast rating is a high 3,000:1, so you'll get deep blacks without impairing the white levels, and the brightness is powerful enough to create a watchable picture without needing a totally blacked out room. There's built-in deinterlacing to turn video signals into progressive scan, in case this isn't done at source, and there's a DVI port that connects to any PC or DVD player with a digital video output.

The projector's looks are acceptable too. A lot of data-orientated models do double duty in people's homes for movies at the weekend. But the H30a is one of the few to be equally good at showing Excel as it is with *X-Men*.

The small casing doesn't leak excessive light or noise - in the lower brightness mode the fan noise goes down to about 26dB and the lamp life should reach 3,000 hours before it needs changing. The H30a is similar to the

InFocus ScreenPlay 4805 (issue 21) in that it also uses Texas Instruments' new DarkChip2 for DLP

projection. Its picture quality is gorgeous, helped by the six-segment colour wheel. The downside of the colour wheel is that there are momentary traces of rainbow artefacts.

The projector's other big drawback is that the imaging chip is only VGA resolution. The irony of having an HDCP compatible DVI port is that you can connect a high definition TV receiver or a DVD player that upscales its output to 720 or 1080 lines. Unfortunately the H30a then scales the resolution down to 480 lines to give you an image. So, although the picture looks good in most ways, it cannot give you ultra-sharp resolution. For normal DVD viewing it's fine. The DVI socket gives best results. With Michael Winterbottom's *Code 46*,

for example, colours are more vivid, there's less video noise because it omits an analogue stage, and the detail is as clear as you can get with VGA. The slight softness actually hides a multitude of sins, so movies with graininess don't look too bad. The drawback is that the best source material will be compromised.

With better brightness and contrast than the ScreenPlay, the H30a is still good value. It is HDTV compatible in that you will get a picture as opposed to a blank screen if you plan to go HD, but don't expect amazing benefits. If you have a DVD collection that you won't be replacing with HD-DVDs, or you watch digital TV but you're not upgrading to Sky HD, then it's worth considering. **IC**

DIGITAL HOME



For Very high contrast; DVI/HDCP digital video input; compact; easy set-up

Against Some rainbow artefacts; VGA resolution only

Verdict A small projector with most of the credentials of bigger counterparts but lacking in resolution.

KEY FEATURES

WVGA resolution (854 x 480 pixels); PAL, SECAM, NTSC; image zoom/shift modes; digital keystone correction; 3 preset picture modes & 2 user defined; 6-segment colour wheel; manual zoom lens; throw distance 1.4-12m; maximum image size 300 inches; contrast ratio 3,000:1; 200W lamp; fan noise 26-30dB; maximum brightness 850 ANSI Lumens **CONNECTIONS** DVI port with HDCP; composite video input; S-Video input; component video input (phonos) **DIMENSIONS** W271 x H87 x D212mm



TESTED WITH... CODE 46

This sci-fi drama is packed with neon-lit night-time exteriors, saturated colours and dusky interiors. It shows off the projector's ability at recreating skin tones and smooth handling of movement.



Mobile Phone

Nokia 9500 Communicator

The road warrior's favourite gets another upgrade, though the style gurus clearly weren't called in to give it a makeover...

KEY FEATURES

Integrated keyboard; Symbian 7 OS; tri-band; 640 x 200 pixel screen; second screen; VGA camera; MP3 player; speakerphone; 80MB of internal memory; SD card slot; HTML/XHTML web browser; full email support (SMTP, POP3, IMAP4); CONNECTIONS GPRS; Bluetooth; 802.11b Wi-Fi; infrared
DIMENSIONS
 W48 x H57 x D24mm

Old school has a habit of becoming 'new school,' and it's ironic that some of the early adopters of this chunky new Nokia will be the same people who laughed at Gordon Gekko brick phones a few years back. We have to say, for the record, that despite its great connectivity, the 9500 is very ugly. It's bulky, corporate looking, and the novelty of the clam-shelled keyboard and screen soon wears off. In Nokia's defence, the device is primarily aimed at business users, and the look and feel of the Communicator range is well established. Weighing in at over 200g, however, you'd better buy a jacket with reinforced pockets.

As a phone and texting device, the Nokia is great. Powering the 9500 is the Symbian 7 operating system, and as you'd expect of a device of this pedigree, there is full support for GPRS, Wi-Fi and Bluetooth. Not to mention various Microsoft Office compatible applications such as word processor, spreadsheet and internet. There's even a tool for viewing PDFs. Synchronisation with your

main desktop PC is straightforward too, reflecting the Communicator's strong PDA heritage. All practical stuff, but we're not quite sure why Nokia felt the need to squeeze in a puny little camera; the inclusion of an MP3 player is also puzzling.

Much more useful is the keyboard. It's a proper QWERTY number and the

keys are beautifully engineered – responsive yet durable – although, only those with Lilliputian hands will be able to touch-type.

The screen can be split into various windows and viewing modes too; this sounds like a minor feature, but it's a real boon when you're connected to the net at the same time as using the word processor and spreadsheet. Despite the dull interface design of the operating system, the screen is great, and offers 65,000 colours (640 x 200 pixels). Battery life is comparable to earlier Communicators, in other words, up to 20 hours of talk time and about 300 hours on standby with the wireless features turned off. Making use of more processor intensive

applications will obviously drain the battery faster, but the Communicator is certainly competitive in this area, with intelligent battery management. Another great feature is the built-in Wi-Fi finder, which automatically tracks down any public access hotspots in your vicinity. There is also full support for Virtual Private Networks (VPN), the mainstay of any self-respecting road warrior.

The 9500 is now available for under £400 depending on your network. If you don't mind the styling and bulk, it's very tempting. It's certainly more flexible than the sort of cheap and nasty notebooks you could get for this money, and the 9500 synchronises with your main PC without skipping a beat. **GH**

Price	£400 (free on some networks)
See it	www.nokia.co.uk
Buy it	www.carphonewarehouse.com

CONNECT TO SONY VAIO PCG-TR5MP

DIGITAL HOME




For Well connected; straightforward synchronisation with desktop PC

Against Bulky at 230g; looks as appealing as a Monday morning in January

Verdict A solid tool for business people on the move, but unlikely to appeal to more casual users.

Lost for words?

We can recommend the words "must" and "have".
The new Spheros R 37 Masterpiece with integrated hard-disc
recorder for deferred  viewing.



Product design: Loewe Design/Phoenix Design.

Loewe UK Customer Helpline 08000 27 64 65 or www.loewe.de

LOEWE.

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

The AJP is surprisingly light at 2.9kg. Okay, so it's hardly an ultra-portable like the Averatec opposite, but it's certainly not in the realms of a heavy desktop replacement.



TESTED WITH...

SHREK 2

The computer animation means you can really see the calibre of a laptop's screen. Plus, at 89 minutes in length, we should be able to watch a lot of it without the AJP running out of juice.



Windows XP Centrino Laptop

AJP Z71A

What do you get when you cross a second-tier manufacturer with a new technology? The answer is a surprisingly good portable PC

KEY FEATURES

Centrino mobile technology; wireless networking; DVD writer; 15.4-inch widescreen; decent processor; sub 3kg weight
HARDWARE Intel Pentium M 730 1.6MHz; 512MB RAM; 60GB hard drive; DVD-RW/CD-RW drive; Intel GMA 900 Graphics
SOFTWARE Windows XP Home; Panda Platinum Internet Security
CONNECTIONS 5x USB 2.0; Firewire; TV output; S/PDIF output; PC card slot; VGA port
NETWORKING Ethernet; 802.11a/b/g Wi-Fi
EXPANSION 3-in-1 card reader (MMC, SD and Memory Stick)
DIMENSIONS W357 x H35 x D276mm

We don't expect companies like AJP to make anything that actually *looks* nice. Developing laptop chassis is an expensive business, so small firms like AJP tend to buy them in from Far Eastern factories. That's why so many non-main-brand laptops all look the same, and for the most part have taken a painful beating from the ugly stick.

But AJP has served up a treat here with a chassis that isn't in mainstream UK circulation. The sloping underside has a pattern reminiscent of an art deco cinema, and the DVD-RW drive is also nicely incorporated into the body.

The Z71A's beauty isn't just skin deep. AJP has grabbed hold of the latest generation of Intel's Centrino technology with both hands. Not only does it boast one of the latest Pentium M processors, but it also has a brand new 915 chipset with PCI Express. And, as well as supporting 802.11b and g, you've also got 802.11a support should you need it.

Part of the new chipset is the integrated 64MB graphics. This is fine for most purposes

but, as with the Averatec, we'd like to see a dedicated graphics chip. It'll cope with most things you throw at it, but DVD playback isn't the finest. Fast action scenes are jumpy, and colour gradation is about as smooth as the national flag of the Republic of Congo. Don't

bother playing back any sort of high-def video.

The Z71A is well connected, with more sockets and plugs than a bath shop. There are five USB 2.0 ports, and Firewire is retained even though many large vendors are abandoning it. You've also got TV and S/PDIF outputs to connect to your home cinema system, while a 3-in-1 card reader (MMC, SD and Memory Stick) is handy for downloading pictures from your digital camera. Such an array of ports is rare on laptops of this size.

But... No, only kidding. There is no 'but'. The performance of this machine won't break any records, but for the price it's pretty damn decent. Take battery life, for instance. Many of the latest Centrino laptops haven't performed well in this field because of Intel's more power

hungry Sonoma chipset. But we got a respectable three-and-a-half hours out of this. The 1.6MHz processor is more than capable for handling most tasks; power users can always opt to spend a bit more for the 2.13MHz version. You've also got a respectable 60GB hard drive – though it's only 4,200rpm, so it can be a bit slow in response time.

£880 isn't a greedy asking price for all this. There's cheaper bric-a-brac in PC World, of course, but you won't get anywhere near this level of specification. Unless portability is your biggest demand, or you want to play games and run other graphics-intensive applications, the AJP Z71A should make a confident grab for your wallet. **DG**

Price	£880
See it	www.ajp.co.uk
Buy it	www.ajp.co.uk

CONNECT TO NETGEAR DG834GT 108MBPS WIRELESS ROUTER

DIGITAL HOME



For New Centrino features; great battery life; excellent performance

Against Looks are a bit staid; poor software bundle; slow hard drive

Verdict Good steadfast performance + nice design + low cost. The sums actually add up this time.

The Averatec 3300 is both beautiful and light as a feather – plus it'll set you back less than 800 quid: we are impressed.

R&R



DIGITAL HOME

VALUE AWARD



TESTED WITH...

THE INCREDIBLES

This digitally created animation film shows up the deficiencies in the Averatec's small screen, but the battery life more than matched up to the duration.

Windows XP Centrino Laptop

Averatec 3300

It's an unwritten rule; new kids on the block don't produce good-looking laptops. So what's the deal with this wafer-thin marvel?

Here's a name to look out for: Averatec.

Averatec is actually an arm of Trigem, the company that's responsible for the manufacture of many of the world's branded desktop PCs. You've probably never heard of them, but you've definitely seen the company's products before. The 3300 is the company's first stab at the laptop market. It's an inexpensive Centrino-based model and, what's more, it's an ultra-portable.

It's actually a very decent platform, and certainly has some decent entertainment credentials. But just like the AJP opposite, there's much that is traded off for the small form factor. Like the AJP, there's no dedicated graphics chip here. It will still be some months before we start to see Nvidia's Go 6600 graphics chip come to market, which should make high-level 3D gaming on ultra-portable laptops a reality. With PCs it's pretty much always the case that if you can wait a few months, something better will turn up, and it's definitely worth holding out for this

new chipset if you desire a slender portable gaming platform above all else.

Delve deeper and you'll see that it's not just in graphics that the 3300 is outdated. While it boasts one of the latest Pentium M processors running at a reasonable 1.5MHz, the Centrino platform it uses is an old one. Intel has recently upgraded both the chipset and the wireless

card that – together with the processor – make up the Centrino trinity. The latest Centrino chipset, which isn't in this laptop, incorporates new technologies such as PCI Express and 802.11a compatibility (not just b and g). 802.11a is certainly useful if you visit the States – most Wi-Fi hotspots there are 802.11a.

The 3300 would lose a beauty contest if it was up against anything from the houses of Apple or Sony, but it wouldn't be with nil points and an embarrassed bow. Apart from the oversized bezel around the top of the 12.1-inch screen, the unit looks good and is well screwed together. Everything works well. The trackpad, for example, is nicely flush with the

main body. Our only bugbear is that you need to manually activate the Wi-Fi connection. And while the 3300 doesn't turn heads like an Apple PowerBook: it sparked some interest from *Digital Home's* neighbouring colleagues in the office, but they don't get out much.

An AMD Athlon XP-M version of this laptop is also available, for £100 less, but the Centrino platform represents the best option for battery life. We managed to get a good three-and-a-half hours out of it. We'd expect this to drop to around two-and-a-half hours with use, depending on how much time the optical drive spends spinning. If you're in the market for a thin and portable PC solution, this one's definitely worth considering. **DG**

KEY FEATURES

Good looks; lightweight; great battery life; 802.11b/g Wi-Fi; lightweight at 2kg

HARDWARE Intel Pentium M 715 1.5GHz; 60GB hard drive; 512MB memory; DVD-R/CD-RW drive; 12.1-inch XGA TFT; Intel Extreme Graphics **SOFTWARE** Windows XP Home; CD/DVD bundle

CONNECTIONS 3x USB 2.0; audio output; microphone output; PC Card slot; VGA port

NETWORKING Ethernet, 802.11b/g Wi-Fi

EXPANSION 3-in-1 card reader (MMC, SD and Memory Stick)

DIMENSIONS

W270 x H25 x D240mm

Price	£795
See it	www.averatec.co.uk
Buy it	www.compuclick.co.uk

DIGITAL HOME



For Great battery life; lightweight; smart design; fully featured; excellent price

Against Based on the old Centrino platform; inadequate graphics

Verdict This is wonderful value. The addition of a decent graphics chip would render it pretty untouchable.

CONNECT TO

LINKSYS WAG54G ADSL WIRELESS ROUTER

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

DIGITAL HOME 51

It looks cheap – and it is; but the DivX 350 is well-equipped for its price.

Format fussiness

DivX-compatible DVD players are notoriously particular about what forms of DivX-encoded movie they will and won't play. We didn't have any problems with this one, probably because we encoded the movies ourselves using the VirtualDub and DivX Pro programs. If you plan on watching downloaded content, bear in mind that just because the movie says it's DivX, it may not be one hundred per cent compatible with your particular player.



DVD Player

Packard Bell DivX 350

Yes, it's another budget DVD player. But don't turn the page yet – this one's got a couple of tricks up its sleeve

KEY FEATURES

Plays DVD-Video, SVCD, CD, MP3, JPEG, Kodak Picture CD, MPEG-1, MPEG-2, MPEG-4, DivX 3.11, 4x, 5.1x; PAL and NTSC output; Dolby Digital and DTS decoders
CONNECTIONS Scart output; component video output; S-Video output; composite video output; 5.1-channel analogue audio output; co-axial digital audio output; optical digital audio output
DIMENSIONS
 W430 x H38 x D255mm

What MP3 is to music, DivX is to video: a form of encoding that manages to make movies relatively small while retaining high quality. So it makes perfect sense that, just as more and more DVD players started including MP3 compatibility a few years ago, we're now seeing a good portion of them boast the ability to play back DivX videos on CD-R discs.

The simplest way to get hold of DivX content is via your PC, and appropriately enough it's Packard Bell, the PC manufacturer, that has come up with the DVD-DivX 350, an affordable DVD deck that is fully au fait when it comes to playing back that content.

We burnt a small selection of DivX movies on to CD-R, and the player welcomed them in. In fact, it welcomed them in with open arms, a cup of sweet tea and a plate of French Fancies. Pop a disc in and a menu screen appears, displaying the available folders and file names. You select your movie and away you go. We even managed to get an XviD movie playing, although oddly without any sound.

Price	£50
See it	www.packardbell.co.uk
Buy it	www.pcworld.co.uk

But DivX isn't the half of it; the player is also compatible with SVCDs, digital photos and HDCDs. Granted, there aren't a lot of the latter around, but we managed to dig a couple of them out of our CD rack (Joni Mitchell's a big fan of the format, apparently) and found them to sound pretty darn good through the player's

analogue stereo output, with the slight bit rate increase over a standard CD giving a distinct bump in clarity.

Despite this flexibility, most users are probably going to be spending more time watching DVDs on this thing than doing anything else, and thankfully it's no slouch in this department either. You wouldn't expect the likes of DVI or HDMI outputs here, and you don't get them, but there's a progressive scan-capable component video output that's ideal for larger screens, as well as the ubiquitous Scart socket outputting RGB video. Both of these provide a fairly detailed, crisp image; it's nothing spectacular, but it's fine for a fifty quid product.

We're not particularly sold on the player's design. Yes, it's might be almost slim enough to be slid under a door, and there's a pretty cool little disc tray that pops out, but the whole thing looks a tad flimsy, and rather cheap. Which it is, we suppose, so fair play.

Of course there's a remote control. In this case, it isn't a particularly good one: the design is fine, but we found it to be very unresponsive, sometimes requiring several attempts at button pressing and a dash of bad language to get the player to do anything.

Overall though, it's a nice, well-equipped package for a reasonable price. We tip our hat to Packard Bell for its successful first foray into the consumer electronics market. **SK**



TESTED WITH...

THE HUNT

We burnt this short animated DivX movie (available from www.divx.com) to CD-R, and it played without a hitch. Audio was clear and the picture was excellent considering the file size. We did notice some compression artifacts, however.

CONNECT TO JVC HV-32D40

DIGITAL HOME



For DivX and HDCD playback; respectable DVD performance; affordable

Against Cheap-looking design; annoyingly unresponsive remote control

Verdict A budget priced but not-very-nasty-at-all DVD player with a good amount of format flexibility

Granted it's a silly name, but the Widio is as clever and as stylish as we'd expect a wireless streaming device to be.

R&R



Wireless Streamer

Albatron Widio

Will this wireless gadget for streaming audio to your headphones prove just as clever as it seems?

Albatron is taking on the big players in the digital music player market with its oddly named but ingenious Widio. The idea behind Widio is that it can tune into music being played around the home or office from a variety of sources: it can pick up audio signals from a TV, hi-fi, even PC, DVD and games consoles.

The Widio system consists of a transceiver and receiver. The transceiver connects by cable to your audio source, where it receives audio signals. It then digitises and retransmits these signals, which are picked up by the portable receiver and forwarded to your headphones. As an added bonus, Widio can work with any headphones, not just the ear-clip numbers Albatron supplies. As an alternative to wireless headsets, the Widio is an elegant solution, and we're impressed by the chic design and small footprint. The receiver obviously takes its styling cues from the iPod which is no bad thing, it's compact enough to carry around in your breast pocket, and FM radio can be picked up, too.

Setting up the transceiver to work is simple enough, and the manual does a good job of explaining everything. The connectors and cables are colour coded, too. So long as your kit has a left/right audio-out connector, it should work with Widio. Widio works at 2.4GHz frequency and can transmit audio signals at 2Mbps

without the need for extra compression. The receiver can pick up signals from seven separate base stations, too.

While Albatron claims the transceiver can transmit up to 50 metres in an open area, you won't want to stray too far away from the transceiver, as the signal quality will deteriorate, and it's also prone to interference from microwaves. The sound quality is reasonable, depending on how far you are from the transceiver, but not particularly spectacular, and it's a good job you can use different headsets as the ones supplied in the box can sound overly trebly and bright. Battery charging can be a tad tedious too, at just over two hours.

We're impressed by the amount of innovation that's gone into the Widio, but we're not sure that too many people will be queuing up to spend \$120 on one, seeing as it's up against quality rivals such as Apple's AirPort Extreme. That said, we can see the Widio appealing to office-bound drones (us, basically) who like to listen to music from a variety of sources without disturbing colleagues. A big virtue of the system is its elegant design and light weight, and it will definitely appeal to style-conscious music fans. With the pound so strong at the moment, the Widio is worth considering, and we expect bigger names in digital music players to start incorporating this kind of technology before too long... **GH**

DIGITAL HOME



For Cheap, flexible system for streaming audio to your headphones

Against Sluggish recharge, worthy but unspectacular sound

Verdict Kudos to Albatron for packing so much wireless functionality into such an elegant device.

KEY FEATURES

Transceiver and receiver for digital audio playback (MP3, WMA, WAV, DVD-A, any audio source)

HARDWARE Wireless transceiver/receiver combo working at 2.4GHz frequency and 2Mbps transmission

CONNECTIONS 2x RCA jacks; mini headphone socket

COMPATIBLE WITH Most digital audio sources

DIMENSIONS Transceiver: W125 x H115 x D40mm; Receiver: W65 x H105 x D15mm

**BEST
ROCK
&
ROLL**

TESTED WITH...

MYLO
DESTROY ROCK AND ROLL
The saviour of dance music in 2004 still sounds great in 2005, and the Widio did a good job of distributing the joyous grooves and mentalist samples around the *Digital Home*, er, home. The kit works fine, so long as you don't have walls like a medieval fortress or live near a microwave testing facility.

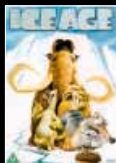
CONNECT TO

KEF KIT-100 INSTANT THEATRE *Digital Home, Issue 20*

TEAM LING - LIVE, INFORMATIVE, NON-COST AND GENUINE !

DIGITAL HOME 53

iPod-esque styling and an astonishingly sharp image talk the talk, but can this portable video player walk the walk?



TESTED WITH...

ICE AGE

Computer-rendered content such as Fox's *Ice Age* is extraordinarily clear and crisp, but the DVX-Pod's screen handles live action footage just as well. The earthy, dusty tones in cult hit *Memento* look fabulously natural.

Portable Video Player

Mobinote DVX-Pod 7010

Desperate for Apple to release a video iPod? Don't fancy the Windows-based PMC alternative? Then the Mobinote DVX-Pod might be just the ticket

Portable video: it's the next big thing. So far, though, pocket-sized video players have remained unflinchingly underwhelming. The small, low resolution displays typically on offer do a resoundingly good job of defeating the purpose of these devices – that is, enjoying video on the move. Of course, the latest generation of high resolution PDAs certainly deliver impressive image quality. But have you tried watching a full length feature film on a 3.5-inch PDA screen? It's far from ideal.

Price	£395
See it	www.mobinote.com.tw
Buy it	www.designervision.co.uk

But what if there was a portable video player with a large, high definition screen that was capable of playing your existing library of digital video files without conversion? A player that could not only display full DVD quality video, but capture it too, and output to almost any TV? We give you the Mobinote DVX-Pod 7010. On paper, it delivers all that, and more.

The headline specifications are impressive: a seven-inch, 720 x 480 pixel LCD display; support for a wide range of popular video formats and codecs including MPEG-4, DivX, WMV9 and QuickTime;

video output to both PAL and NTSC TV sets and high quality video capture to MPEG-4. Bung in support for both MP3 and WMA audio playback, as well as photo viewing and voice recording, and you'll find yourself with all the ingredients for a killer mobile multimedia device.

If that's the theory from Mobinote, what's the DVX-Pod like in practice? Well, any attempt at truly pocket-sized portability must have been unceremoniously thrown out of the window early on in its development because this thing is big. The screen bezel and inch-deep frame make this about as pocketable as the *Complete Works of Shakespeare*.

CONNECT TO

SHARP DV-HR300H Reviewed this issue, page 43

KEY FEATURES

Video record via PAL/NTSC AV-in; recording in MPEG-4 (*.asf) format; 25 fps at 704 x 240; audio recording in MP3 format; 32kHz at 48/96/192 kbps; AV-out in PAL and NTSC formats

VIDEO PLAYBACK DivX 4+ (.avi) 30 fps at 720 x 480; DivX 3.11 (.avi) 30 fps at 352 x 288; Microsoft WMV 9 (.wmv) 30 fps at 352 x 288; Apple QuickTime 6 (.mp4) 30 fps at 640 x 480

AUDIO PLAYBACK MP3; WMA

IMAGE PLAYBACK MPEG; BMP;

GIF HARDWARE 7-inch LTPS LCD

(6.5-inch viewable); 720 x 480

resolution; 20GB 1.8-inch hard

disk **SOFTWARE** MManager

content management software

for Windows **CONNECTIONS** USB;

AV-in; AV-out; headphone jack

COMPATIBLE WITH Windows XP;

Mac compatibility in generic USB

storage device mode

DIMENSIONS

W192 x H115 x D28mm

Which makes the relatively modest 20GB capacity of the Toshiba hard disk all the more galling. With your average DivX movie clocking in around 700MB, you're limited to about thirty movies tops. A 40GB version is on the horizon, though.

As for the aesthetic of the DVX-Pod's chassis, the homage paid to Apple's Jonathan Ive-era design ethic is obvious. That's fine if you're still charmed by Apple's best-selling music player. For some, however, the ubiquity of the iPod has bestowed anything hewn from white plastic with a whiff of trailer park trash. Still, we've no quibble regarding build quality; it's a solid unit.

But the best news involves the DVX-Pod's stunning image quality. The LTPS LCD panel is really bright and boasts bags of contrast and a superfine pixel pitch. The result is breathtakingly sharp video playback – it's truly impressive. And yet it's annoying that the unit fails to use the whole screen to display content: there are thin black bars on either side of the display. Mobinote tells us that future revisions will feature an option to stretch the image over the entire screen (there are approximately 50 pixels on either side not currently being used). But be warned: this will be a hardware upgrade not available to existing owners.

The majority of the DivX, QuickTime and WMV9 files we tried played without a hitch, and for the minority that won't,

Mobinote provides a transcoding application that should guarantee almost universal compatibility. Likewise, transferring files from a PC is quick and easy. Synchronisation software is provided, but videos and music can simply be dropped straight on to the device for playback from any PC with a USB connection – drivers are not required.

Once on the device, finding and playing content is about as brain taxing as watching *Teletubbies*. Sadly, its features are about as rudimentary as Laa-Laa and Po's activities, too. There's no facility for queuing up video content and you can't browse playlists while listening to music. Similarly, while the video capture function produces reasonable results in terms of quality, there are no scheduling options whatsoever; it's simply play or record. But battery life is reasonable – between three and four hours.

It's the same story with every personal video player yet: enticing, but ultimately flawed and far from perfect. Come on Apple, show them how it's done! **JL**

DIGITAL HOME



For Breathtaking screen; good codec support; simple to use

Against Too big; limited storage capacity; rudimentary playback and record options

Verdict Delivers unparalleled image quality. Nearly fabulous, but size, cost and limited functionality disappoint.



Wireless Networking Bridge D-Link DWL-G810

The whole of Chicago is going wireless. Get there first by de-cabling your games console

The bigger they are, the harder they fall. Or, with wireless networks, the faster they are, the more havoc microwaving soup in the next room causes. With so-called Super G wireless devices, such as this bridge, the mooted promise is 108Mbps speeds – a shameful exaggeration, of course, but it is almost twice as fast as its precursor, 54Mbps vanilla G.

Price	£63
See it	www.dlink.com
Buy it	www.wlanplanet.co.uk

Unless the microwave's on, then that speed goes through the floor. But, for when you're not preparing ready meals, our

real world tests had this D-Link and a Netgear DG834GT router copying 300MB of data between two PCs in just over two minutes, as opposed to G's five minutes. Not quite justification enough to use the word 'blistering' with impunity, but a vast improvement nonetheless.

Yet this is neither wireless access point nor receiver, but a bridge aimed primarily at fooling games consoles or printers into thinking they're hooked up to the web by a standard Ethernet connection, so they don't need to be in the same room as your phone point or router. And because a console only needs a standard 512kbps broadband connection, most of this bridge's capabilities remain unused – a PCI or PC card is better sense if you just want to bless your PC with Super G. Set-up is in theory straightforward, but in practice the D-Link's ugly but simple interface tends to hang mid-configuration, while hitting the top speeds took a lot of settings tweaking. Compatibility is a greater concern: many Wi-Fi devices claim speeds of 108Mbps, but they don't all use the same technology. Be sure your other kit uses the same Atheros chipset as this, otherwise you'll be stuck with plain old 54Mbps speeds. **AM**

DIGITAL HOME



For Impressive speeds, doubling those of its predecessor; pleasingly small

Against Ropey interface – lots of tweaking required; limited compatibility

Verdict A definite speed boost, but with Wireless-N on its way you may want to wait.

CONNECT TO D-LINK DI-624 WIRELESS CABLE/DSL ROUTER

LONG TERM TEST

Multi-Channel Receiver

Rotel RSX-1056

In the AV world seven channels is rapidly become the norm, so how could a five-channel offering possibly survive?

KEY FEATURES

5x 70 Watts amplification into 8 Ohms; Dolby Digital/EX, DTS/ES/ES Discrete/DTS 96/24, Dolby Pro Logic II processing; two zone multiroom option; RDS FM tuner; learning remote control

CONNECTIONS Eight channel analogue input; nine source inputs; 2x optical digital input; 3x co-axial digital input; 3x component video switching; full set of pre-outs

DIMENSIONS

W432 x H162 x D442mm

When the Rotel representative dropped off the RSX-1056 a few months ago he was almost apologetic. In a market where even £400 receivers are packed to the gills with seven channels of amplification, this vast hunk of silver and black metal only comes with five. For an amplifier to get good reviews and big sales it seems seven is the magic number, even though the vast majority of surround sound homes in the UK only use five channels. If that school of thought has adversely affected the sales of this receiver then it's a damn shame,

as this is one of the best surround sound amplifiers we've ever heard.

You only have to look at it to see that it means business. While the heat sinks along each side are as much for show as they are practical, the silver fascia is well crafted, with an impressive army of buttons located either side of a solid volume knob and a large, clear LED display. Rotel has made a feature of its visible controls, turning them to form part of the aesthetic appeal of the box, which means much less scrambling for the remote.

Price	£1,200
See it	www.rotel.co.uk
Buy it	Sevenoaks, 0800 587 9909

The Rotel can handle most of the current crop of surround sound formats, and does a better job at it than our reference Denon DVD-2900 universal disc player, which is some feat. There's also plenty going on around the back, with connection options for every conceivable source component except HDMI or DVI, which are still rare on receivers and not vital until you have more than one product boasting the connection that needs wiring up to a screen.

Less is more

There's a simple law to multi-channel amplifiers: a seven-channel model selling for the same price as a five-channel won't have power amps of the same quality. It's obvious: financial savings have to be made so the quality is lowered. Also power amps need space to work at their best, and the more amps, the less room. The RSX-1056 demonstrates this in a very practical way. When compared to the likes of Denon's impressive seven-channel AVR-3805 operating in 5.1 mode, the Rotel sounds considerably more composed and refined. Okay, perhaps that's not what you want when trying to impress a gaggle of your mates with a quick blast of the giant wave crashing down Fifth Avenue in *The Day After Tomorrow*. But live with the Rotel for a few months and you begin





to appreciate its abilities. And you'll find it hard to return to the more up-front bombastic performances of less capable products.

If you really want seven channels, the 1056 is more than capable of decoding them. On the occasions when we've had it running with a full 7.1 surround system, the simple addition of Rotel's RB-1050 two-channel power amplifier (£300) has paid immediate dividends. Tonally the pair are perfectly matched, and with the power amp driving the front two speakers there's plenty of oomph on tap. Okay, so it's an extra unit you need to accommodate, but if you have room in your life for seven speakers and a subwoofer, you could probably fit in one more small box.

The money shot

The thing that really excites us about this Rotel is that it's one of the few affordable surround sound receivers that not only sounds passable in stereo, but actually gives most



decent stereo amplifiers a run for their money. There's a sense of space and airiness to the sound that amplifiers, such as Pioneer's new VSX-AX5Ai-s, fail to match with the likes of Mercury Rev's *The Secret Migration* CD. Switch to the less popular, but considerably better sounding high-resolution formats, and once again the Rotel comes out fighting. *The Best of REM* on DVD-A sounds so good in the 5.1 mix it seemed as though Michael Stipe had entered the room. Scary moment.

If you want 5.1 surround sound and two channel music from the same source, then this, partnered with Denon's new DVD-2910 universal player, is about as close to perfection as you're going to get without re-mortgaging your home. It's even capable of driving a high-end speaker system such as B&W's new 800 series, and would work incredibly well with, say, five 805s.

Our only gripes concern features. We've mentioned the lack of seven channels, but if you want

lots of bang for your buck, more important is the 75 Watt per channel power rating. Even though this is into a very real world 8 Ohm load, the figures aren't as tantalising as, say, the Denon AVR-3805's 160 Watts into 6 Ohms.

Finally, the remote is a bit of a pain. While it's functional, it's not up there with the best that Denon and Marantz offer.

If you are the kind of person who must have the very latest technology then you probably haven't read this far. If you're still here, remember that 5.1 still rules in 95 per cent of surround sound homes, and this stunning hunk of metal is one of the best sounding 5.1 amplifiers we've ever encountered. Coupled with the stereo power amp, it's one of the best seven channel amps as well. We'll be wearing black armbands the day Rotel takes back our review unit. **SM**

DIGITAL HOME



For Stunning multi-channel sound; excellent stereo performance; solid build

Against Only has five channels of amplification; remote is a dog

Verdict Look beyond the headline features and this could be the multi-channel receiver of your dreams.



TESTED WITH...

MORRISSEY PRESENTS - THE RETURN OF THE NEW YORK DOLLS, LIVE FROM THE ROYAL FESTIVAL HALL 2004 (DVD-VIDEO)

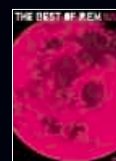
Digital Home was actually at this historic gig, so we can attest to the accuracy of both the disc itself and the Rotel's performance in replaying it. The live sound is relayed with excitement and passion, but never at the expense of detail and realism.



TESTED WITH...

THE INCREDIBLES (DVD VIDEO)

This animated masterpiece is incredibly well served by the Rotel. Dialogue is delivered with such panache that you never miss a gag, and the surround effects from the rear speakers offer more than enough to satisfy.



TESTED WITH...

THE BEST OF REM (DVD-AUDIO)

The high-resolution stereo is delivered with startling ability for a multi-channel amplifier. Michael Stipe's eccentric vocals still make absolutely no sense whatsoever, but the voice is crystal clear while the guitars and drums rock out when called upon.

Media Center Alternatives

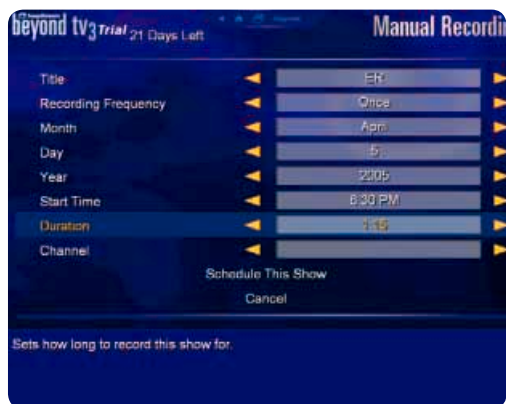
If you've already got a PC yet want Media Center-style functions, Microsoft leaves you high and dry. But you could always consider these substitutes...

When Microsoft released Microsoft Windows XP Media Center Edition, it confirmed something that most of us already knew; Microsoft want the PC to invade the living room. But officially, MCE 2005 is only available on new systems, and you have to pay a premium for it.

There are websites, however, where you can buy OEM versions of the Media Center OS, so it is possible to create your own system – we looked at converting your existing PC into a Media Center in our last issue. Buy the software, pick yourself up a Microsoft-branded Media Center remote for

about £30 and you can put together a multimedia PC for far less than the cost of a new system. However, if you don't want to build a new system or reformat your Windows installation to install Media Center, you could do far worse than choose one of the alternatives we've picked out here.

Some of these options are purely TV-related PVR software. Others are true Media Center alternatives that enable you to handle music, DVDs and pictures too. Some will do the job every bit as well as Microsoft's product and, as you'll see, they cost a lot less money too.



Beyond TV 3

Price \$70 (£36) **From** Snapstream **See it** www.snapstream.com

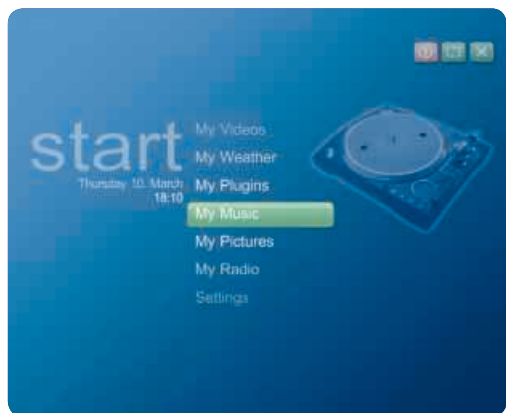
Beyond TV's price puts it on a par with ShowShifter. The website also sells a bundle deal with a Hauppauge WinTV-PVR150 card, but as this is a US site, the pack is an NTSC only one.

The software is more fully featured than the other Media Center knock-offs we've shown here. There's support for more than one TV tuner, for example. This may not seem much, but dual tuners are now becoming more commonplace; Hauppauge even sells a card (the PVR-500) with two analogue tuners on the same board.

Beyond TV has some natty touches. The SmartSkip function enables you to skip through blocks of

commercials, which is a great addition. Unlike in the free apps, there's excellent support with TV listings from tvtv.co.uk, while there's no problem when you're searching for specific shows, either. Series recording is also incorporated, something that's one of the best features of Windows XP Media Center.

If you can't afford any extra storage space, Beyond TV has a feature called ShowSqueeze that means you can shove more shows on to your hard disk. Don't pack your hard disk too full though; your PC will slow to a frustrating crawl.



Media Portal

Price Free – open source **From** SourceForge **See it** <http://mediaportal.sourceforge.net>

And we thought Pinnacle's Media Center software looked like Microsoft's Media Center. If imitation really is the sincerest form of flattery, then the chaps behind Media Portal might as well be kissing Bill Gates' feet. Media Portal looks exactly like Windows XP Media Center Edition. And, if Media Portal was a retail software product instead of being open source, we can imagine that Microsoft would be battering down the door.

The benefit of open source software is that anybody can offer improvements or plug-ins for the software – often you can find modifications to open source software that plug gaps in functionality you previously thought

unpluggable. As such, open source applications are always growing.

Listings are provided by a utility that grabs them from other sites in XML. Media Portal is broader than just providing PVR functions, however. Like ShowShifter, it enables you to play your music and watch video clips or DVDs. Radio is also catered for, should you have a compatible card within your PC. Usability is pretty similar to Microsoft's Media Center, but it's slightly less polished. You'll also need Windows XP to run it. But for free, you can't complain.



MythTV

Price Free – open source **From** SourceForge **See it** www.mythtv.org

From the outset, it's blindingly obvious that MythTV isn't for the beginner, as much as the natty cartoons on the screen might have you think otherwise. It's an open source application, which means its source code is posted on the web for all and sundry to improve or modify. It's also not a Windows or Mac-based piece of software – it runs on Linux and is designed for those who want to build a specific Media Center-type box. Unless you're already a Linux convert and enjoy doing things the hard way, we wouldn't recommend you plump for this product.

MythTV concentrates on the business of recording TV for playback so, unlike other applications here such as

ShowShifter and the Pinnacle product, it's not attempting to be a complete media solution. True, MythTV does look quite snazzy and it's also fully compatible with digital terrestrial tuners.

Unfortunately, UK listings have to be imported using XML, and this isn't really too convenient for your average TV viewer. The application does include a scheduling tool, so it does really have all TV functions pretty much covered, but we'd recommend that you put your hand deeper in your pocket and buy something like ShowShifter instead.



Pinnacle PCTV Media Center 300i

Price £76 From Pinnacle See it www.pinnaclesys.com

Pinnacle has long been interested in providing Media Center alternatives – even before there was a Media Center OS, in fact. It's ShowCenter box is a marvel, so it only seems right that they should release something that enables you to take the concept to your existing PC. Pinnacle has bundled its software with a Freeview digital TV tuner card, plus a handy remote. This trinity enables you to completely embody the Media Center spirit but with remarkably less hassle.

The PVR functionality is fairly easy to master, but our favourite part of the software is Pinnacle Media Manager, essentially a nicer version of Windows Media

Player's file management facilities. It's far more useful too. Music, video and pictures are available on different tabs and are easily accessed. The remote isn't the finest, but it fulfils most of the functions you need.

Pinnacle has chosen to retain much of the familiar blue that embodies Microsoft's familiar blue Media Center interface. Menu highlights are even similarly shown in green. If you want to get Media Center functionalities on an existing box, it represents rather good value for money, especially considering that digital terrestrial receiver.



SageTV

Price \$150 (£78) From Frey Technologies See it www.freytechnologies.com

Like most of the other applications listed here, SageTV says it is intended purely for use as a PVR. However, it has the added bonus that you can play back music and video using it, too, so it is somewhat more of a full Media Center alternative. Plus, it also enables you to record programmes in MPEG-2, MPEG-4 or the remarkable DivX format.

There is support for multiple tuners as well. Sage TV is cleverer than most, since it can also support more than one tuner on a network. So, if you have a PC with a tuner elsewhere on your network, you can combine the two into one interface. It's a unique feature.

However, its major disadvantage is that it only supports US listings. That doesn't render it completely useless by any means, but it does mean that you have to schedule recordings by time rather than simply selecting a programme and clicking a button. It also means that the menus are written in American English which will annoy the pedants among you. Realistically though, this inevitably means that you're not going to choose this solution over and above any of the others we've shown on these pages. And that's why it can't attain a favourable score in our test. Shame.



ShowShifter 3.11

Price £35 From Home Media Networks See it www.showshifter.com

The move from ShowShifter 3.0 to 3.1 was rather more than a mere single point release would suggest. Home Media Networks, already sitting on the main alternative to Media Center, has completely redesigned the interface of its innovative product. It really is like a brand new version. And it's cracking. You can even change your recorded TV programmes into the DivX format – just superb. This release has also had a number of other general fixes and improvements to make the software more stable than previously.

There's also an improved TV listings support together with a much cleaner interface. However, you will find

that it does feel a little clunky to use from time to time, especially compared to Microsoft's MCE 2005. Depending on how comfortable you feel with ShowShifter, you can change the user level of the software. This will then dictate how many options you can change. There's still room for improvement with ShowShifter, especially in terms of being able to fine-tune the interface to suit your individual needs, but the price point (less than half the price of SageTV), and the marked improvement shown by this version renders it a serious choice should you already have a TV card.



CONCLUSION

You'll have noted that our group test is split into two groups: fully-featured Media Center alternatives on one hand and PVR-specific software on the other. Of the fully featured apps, there's no doubt that various iterations have blessed ShowShifter a better interface, making it a better product. Already got a tuner? Then ShowShifter is an ideal option. It's fully UK supportive and easy to use. And UK support is something you have to watch out for – Windows XP Media Center Edition has it sewn up. If you don't already have a TV tuner card, we recommend you get a hardware/software package like the Pinnacle.

It's an interesting time for Media Center alternatives, that's for sure. Where Microsoft leads the way is in the complete integration of Media Center into the Windows operating system. The company supplies its own branded Media Center

remote, complete with green Windows Start button – it is, quite simply, a superb bundle. But alternative Media Center software is great for those of us who have an existing PC that we want to add some Media Center-style functionality to.

As we move towards 2006's Longhorn, the next version of Windows, it's becoming clear that the new OS will have Media Center functionalities built in as standard. But because Media Center alternatives will run on your existing system, you could use any one of these apps to turn an old PC into a PVR. That's where these alternatives can still carve out a niche. And, what's more intriguing is whether the smaller apps can react to new technology quicker than Microsoft. How soon will we be seeing Sky support on a PC? Your guess is as good as ours, but we bet that Microsoft won't be there from the off.



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SHEFFIELD

SOLIHULL

SOUTHAMPTON

SOUTHGATE

STAINES

SWINDON (NEW)

SWISS COTTAGE

TUNBRIDGE WELLS

WATFORD

WEYBRIDGE

WITHAM (ESSEX)

WOLVERHAMPTON

R&R
THE UK'S TOP TEN

MEDIA CENTERS



The worlds of computing and home cinema are converging like never before, and much of this is down to Microsoft and its latest baby: Media Center. Which computer is the best carrier of this intriguing software? Read on and find out

By Sam Kildsen. Photography by Philip Sowels

It's been a little over a year since Microsoft unleashed Windows XP Media Center Edition (MCE) upon us, but Bill Gates and co. are already pushing their second version of the software. An updated 2005 model comes replete with a handful of new features and a promise to revolutionise the way that we experience our entertainment media in the home.

Put simply, Media Center 2005 is Windows XP Professional with a difference. Aside from providing the basic Windows setup and all the trappings we'd associate with it, it transforms any computer into a television, a DVD player, a video recorder, a digital jukebox, a radio and a photo viewer. It also allows each of these functions to be accessed from a clear, simple on-screen menu using a remote control. The

idea is for the frequently separate worlds of IT and AV to be brought crashing together in one ultimate entertainment device.

Assembled here are ten of the very best machines available, put into order of merit. Microsoft insists on a minimum spec for any PC carrying MCE so you can expect a roomy hard disk, decent graphics capabilities and full multichannel surround sound.

But there's also a lot to set the models apart. Some manufacturers have bundled bags of equipment with their machines, while others have left these as options for the buyer. The designs vary from classic PC tower cases to metallic hi-fi-esque units. Whatever the case, if a Media Center is on your shopping list, feast your eyes on our ultimate round-up... ►

How we review and rate Media Centers

With most of these models costing well over a grand, it's clear that a Media Center PC is going to represent a major investment for most people. Naturally, you want the best model for your money, so we think it's only fair that we put each one through rigorous tests before we start expounding on its good and bad points.

TESTED WITH...



Rome: Total War (PC CD-ROM game)



ALEXANDER (HD trailer)



Aha Shake Heartbreak (CD)

With a fair few machines now on the market, we first have the tricky job of picking out the ten best. Assuming that most buyers will be placing their new Media Center in the living room enables us to weed out the less 'aesthetically sound' models; after all, nobody wants a bloody great beige box sitting next to the telly. Once we've got our grubby mitts on a few suitable models, we're able to quietly dismiss any that aren't quite up to the job, leaving us with the ten lovelies you'll see in the following pages.

And so on to the testing process. Each model is hooked up to a Humax LCD TV via a VGA connection (and a DVI connection if the PC supports it); its 26-inch high definition panel is perfect for revealing any shortcomings in the Media Center's video performance. We put the model through its paces

with some HDTV content (movie trailers downloaded from the net), and also take a look at the quality of its integrated TV tuner(s) by lashing up an antenna.

We then connect the PC to a set of THX-certified Creative Gigaworks speakers to test surround performance, and later to a high-end AV system to get a taste of its two-channel sonic chops. To give the Gigaworks a workout, a *Return of the King* DVD is slipped in. Keeping it on a regal tip, we rip a copy of The Kings of Leon's *Aha Shake Heartbreak* CD on to the hard disk in order to sample some good old

fashioned stereo audio through a pair of high-powered KEF speakers.

For all its audiovisual jiggery pokery, a Media Center is still a PC, so we benchmark the model using 3DMark03 and a copy of the spectacular *Rome: Total War* game.

And after that, we also take into account the level of connectivity on offer, how easy the system is to use, and last – but far from least, how nice it looks. Phew. And you think we sit around playing games and watching DVDs all day.

Fatal Error: Microsoft in your living room

"Why would you want to put a PC in your living room?" A few years ago, if you had told someone of your intention to buy a computer for the purposes of home entertainment and hook it up to your living room's audiovisual gear, that is just the kind of response you could have expected. Computers were grey boxes with tinny speakers and tiny screens, not hi-fis.

Things soon changed. Thanks to the huge digital revolution in consumer electronics, not to mention the rise in stylish PCs, the idea of using a computer mainly – or even solely – for entertainment purposes no longer seems ludicrous.

Suddenly, PC manufacturers began to launch machines that acted as DVD players,

TVs, audio jukeboxes and PVRs all in one. Often these computers incorporated an easily negotiable menu system that sat over the operating system, allowing users to control the various functions from their sofas with remote controls.

With the PC operating system market almost completely in its grip, Microsoft has always been keen to jump on to a revenue-generating bandwagon; it happened several years ago with the company's foray into the games market, first via PC and then through the launch of the Xbox, and soon it was happening with entertainment PCs and Media Center Edition. This entertainment-focused version of Windows has been designed for large displays, and

features a menu providing easy access to functions like video recording, music playback and television.

Media Center Edition 2004, the first version launched in the UK, was only available pre-loaded on new machines built by a select band of Microsoft partners including HP, Evesham, Mesh and Elonex, but the new version, cleverly dubbed '2005', can be bought by any PC builder as an OEM product. Because of this, and also because of the forthcoming UK launch of Media Center Extender (a device which allows wireless streaming of Media Center content to different parts of the home), it looks like 2005 will be a much better year for Microsoft's multimedia OS.

10

ARIES MEDIA EXPERIENCE 64

£799

Costing a shade under

DIGITAL HOME EXCLUSIVE

£800, the Aries is the cheapest model in our Top Ten by some margin. And, at least on the surface, it looks it. The case has the kind of small, slimline shape that mirrors an AV device and should therefore suit a Media Center, but up close it lacks the air of quality and solidity exuded by the likes of the Tranquil and the Hush. Also, unlike these models, the Aries lacks a passive cooling solution, so it does belt out a fair

bit of fan noise, not to mention a slight whirr from the hard disk.

Look past the bog standard styling and build quality, though, and you'll find a good home for your media collection. Wisely, costs have been kept down by not including speakers or a monitor, but the package does include a Microsoft cordless keyboard, mouse, and a game controller together with an external USB Wi-Fi adapter.

There's a 250GB slice of storage space on offer, as well as respectable

measures of processing power and memory. The Radeon X300 graphics card struggles to get to grips with the latest games (including bundled software like *Far Cry*), but is more than adequate for running Media Center – except when it comes to WMV-HD. The *Alexander* trailer gives this machine a thorough kicking, and even less taxing high definition movies display a slight touch of horizontal 'tearing' during panning movements.

Audio quality is definitely decent enough, but as the on-board sound chip doesn't have its own surround decoders, you'll have to make use of the co-axial output and some good external processing if you want a serving of

multichannel wizardry to complement your movies and games.

The Media Experience doesn't excel in any area except price. Depending on your needs, that could be a selling point or a matter of no importance, but we think it's worthy enough to warrant a placing.

www.savastore.com

For Great value for money; decent all-round performance; compact case	Features	★★★★★
	Performance	★★★★★
	Connectivity	★★★★★
	Design	★★★★★
	Value	★★★★★
Against Dull design and average build quality; no built-in multichannel sound	Verdict	Has much to admire but does little to amaze. A solid Media Center at a tempting price.
		★★★★★

It might resemble a dodgy Taiwanese DVD recorder, but there's a respectable Media Center underneath.

KEY FEATURES

- Athlon 64 3000+ processor
- 512MB RAM ► 250GB hard drive ► 802.11g Wi-Fi

9 ADVENT MC3040 £899

When PC World decides to throw its considerable bulk behind Windows Media Center, you can be pretty sure that the software has entered the mainstream. This isn't the first Media Center that Advent, one of the flagship PC ranges sold by the retail monster, has launched, but it's certainly the best so far.

The MC3040 sports a distinctive design. There's an eye-catching mirrored front panel (one side of which opens up to reveal front connections and card slots; the other hides the DVD rewriter tray), and, in PlayStation 2-esque style, it can be mounted either horizontally or vertically. These quirks can't hide the fact that, compared to most machines here, the Advent looks a little shabby.

We'd like to erase the cordless keyboard and mouse from our minds, such is the utter garishness of their styling, but we feel you people should be

told about these things. The level of equipment and features is fine; integrated Wi-Fi, a card reader, speakers and a 17-inch LCD monitor all being part of the package. Ordinarily we'd question the inclusion of the speakers, but this system is available for around £100 less if you opt to leave them out, so we'll let it slide.

A reasonably muscular Pentium 4 processor keeps Media Center ticking along nicely, and there's an acceptable 160GB of hard disk space. Audio and video quality is standard, and WMV-HD video runs fine. The inclusion of an ageing GeForce FX5200 card is disappointing, and it only just broke the 1,000 barrier on 3DMark03.

Performance and features-wise Advent has done a passable job. But in such attractive company as the Elonex and Hi-Grade offerings, this is left looking like the ugly duckling. www.pcworld.co.uk

The Advent's mirrored finish looks like a nice idea, but seems to attract greasy fingerprints like nobody's business.



KEY FEATURES
▶ 2.93GHz Pentium 4 processor
▶ 512MB RAM ▶ 160GB hard drive ▶ 802.11g Wi-Fi

For Comparatively affordable box; nice slice of processing oomph; good range of features

Against Previous generation graphics card; uninspired, cheap-looking design

Features ★★★★★
Performance ★★★★★
Connectivity ★★★★★
Design ★★★★★
Value ★★★★★

Verdict A decent Media Center but a few glaring flaws give it a low position. ★★★★★

8 TRANQUIL PC T2E £910

When it comes to design, few Media Centers can touch the Tranquil. Like the Hush, this aptly-named machine exhibits little more than a whisper of noise when running, thanks to a clever choice of components, solid build quality and most importantly, a passive, fan-free cooling system.

That's some achievement, but the Tranquil goes one better and trumps the pricier Hush with its incredibly compact dimensions; this really is a tiny, slimline

device that would look right at home in most hi-fi racks. The glowing blue MCE logo on the front may divide opinion, but otherwise there is little to fault in the machine's styling.

However, it seems that in making the model so petite, Tranquil has had to compromise in certain areas. There's no room for built-in Wi-Fi, for instance. The machine is based on the VIA SP13000 motherboard, which features an integrated 1.3GHz C3 processor, as well as on-board graphics and audio chips.

While this configuration helps reduce heat and power use, it's pretty feeble when compared to those used by the other models here.

The audio side of things is fine, and the processor is potent enough for most MCE functions, but simply couldn't cope with WMV-HD video – the *Alexander* trailer jerked along, with sound and picture hopelessly out of synch.

The graphics processor, meanwhile, is too basic to run anything more advanced than *Minesweeper*. In fact, it can't even output a true widescreen mode, which for a Media Center is downright inexcusable, as it severely restricts DVD playback. Now, Tranquil believes this oversight will be remedied

with new drivers in time, but we can only review the model in front of us.

We love the T2e's case dearly, but its performance side needs some work; a forthcoming Pentium M version could be the answer. Until that surfaces, the Hush gets our vote as the better silent runner. www.tranquilpc.co.uk

For Lovely compact design; noise free cooling; decent price; dual digital tuners

Features ★★★★★
Performance ★★★★★
Connectivity ★★★★★
Design ★★★★★
Value ★★★★★

Against No widescreen output; no Wi-Fi; awful HDTV performance

Verdict Why not buy the case on its own and build a more capable Pentium M PC. Now there's an idea.... ★★★★★

Fin-tastic: it's noise free and unbelievably small, but the Tranquil sacrifices a little too much to be ranked higher.



KEY FEATURES
▶ 1.3GHz VIA C3 processor
▶ 512MB RAM ▶ dual tuners
▶ 160GB hard drive

7 ELONEX LUMINA £2,250

Elonex is a dab hand when it comes to building self-contained Media Center systems, wowing the PC world last year with the launch of the intriguing eXentia. Featuring a 17-inch screen with an entire computer system built into a small box behind it, the eXentia is ideal for small rooms, student accommodation and so on, but it's too limited in scope to really belong in our Top Ten.

The new Lumina model is an entirely different kettle of fish. This time, Elonex has raised its sights, cramming the guts of a Media Center into the casing of a lovely 32-inch high definition LCD screen. Look at it – it's even got a brushed aluminium finish.

The designers haven't compromised on the performance, either. The Lumina is powered by a 3GHz processor, uses a dependable (if ageing) Radeon 9600 card to provide graphical muscle, and has a

respectable 200GB of hard disk space at its disposal. The latter is upgradable to 400GB before purchase, and you can also bump the 512MB of RAM to 2GB.

Whatever you choose, the standard layout is more than adequate for Media Center. Digital TV, DVDs and especially WMV-HD videos look glorious on the crisp, clean LCD panel, and the 9600 is able to run games quite handily.

Our main gripe is with the speakers which, while they're not bad by television standards, they aren't really ideal for listening to music. Still, as with the other machines here, there's nothing to stop you from connecting your own.

Overall, it's difficult not to be impressed by the ease in which the Lumina combines PC and TV (although you need to use two remotes). That said, it's too much of a specialised product to place higher in the Top Ten.

www.elonex.co.uk

For Smooth melding of PC and TV functionality; lovely styling; strong all round performance

Against Average speakers; needs two remote controls; too specialised to appeal to everyone

Features ★★★★★
Performance ★★★★★
Connectivity ★★★★★
Design ★★★★★
Value ★★★★★

Verdict A bit of an oddity, certainly, but by no means a bad piece of kit. ★★★★★

There's no way for you to upgrade the Lumina yourself. You can instead specify a number of upgrades when you purchase it.



KEY FEATURES

► 3.0GHz Pentium 4 processor
► 512MB RAM ► 200GB hard drive
► 32-inch LCD TV with 1,366 x 768 resolution

The m1260.uk doesn't scream out for a spot in your living room. Maybe HP will get the design right next time.



KEY FEATURES

► 3.0GHz Pentium 4 processor
► 512MB RAM ► 160GB hard drive
► 802.11g Wi-Fi
► 17-inch LCD monitor

6 HP PAVILION M1260.UK £999

Of all the machines here, the HP suffers most from 'desktop hangover'. While most manufacturers have decided that a Media Center ought to look like a slick, compact refugee from the hi-fi rack, HP have stuck with a tower design.

While it isn't hideous, the Pavilion remains a far cry from the living-room friendly designs used by the Hush, Tranquil and Elonex Artisan. It's too noisy, too bulky and too plasticky – in other words, too much like a computer.

The poor styling is a shame, because this PC is mighty impressive in other areas. The specification is fine, and it copes well with the main aspects of Media Center, the only oversight being the lack of twin digital tuners. We're not big fans of the bundled monitor and speakers, but happily you can buy the HP without these for £90 less. Otherwise, the level of equipment is superb: integrated

Wi-Fi, card reader and, best of all, a 160GB removable hard drive to complement the 160GB one already there.

While we might moan about the design, the system's large case means that HP has been able to fit in some real quality in the form of the Audigy 2 ZS. While the other nine machines use motherboard-based audio processing, this separate sound card makes the system, sonically, the best here.

The X300SE graphics card, meanwhile, won't get diehard gamers' pulses racing, notching up just under 2,000 3DMarks. However, it's capable of doing its primary job, which is to ensure that Media Center works nicely.

Without its design flaws, it would be a very good Media Center. Until these are sorted – and its forthcoming z550 model looks promising – there are other machines more worthy of your money.

www.hp.co.uk

For Fantastic sound quality; nifty removable USB hard drive

Against Unattractive Desktop PC looks; noisy fan; no digital tuner

Features ★★★★★
Performance ★★★★★
Connectivity ★★★★★
Design ★★★★★
Value ★★★★★

Verdict The HP's design stops it from achieving its full potential. ★★★★★

5 HUSH E3-MCE

£2,300

If the German PC meisters at Hush Technologies have a motto, we're guessing that it's probably, "Let's have some quiet time". Nobody makes silent PCs with the same panache and sheer Teutonic efficiency as these chaps, and what better canvas upon which to paint their masterpiece of noiselessness than a Media Center, where silence is most definitely golden?

We don't want to overstate this, but the Hush really is a brilliantly designed

and put together piece of kit. The granite-like solidity of the build and the classically handsome styling make it the kind of achingly desirable product that will have your family and friends gawping like goons. What they won't notice is the fan and hard disk noise, because there isn't any.

Nope, not even the high-end Radeon X800 graphics card needs a blower, with a heatsink and the case's distinctive fins doing all the hard work. One for the serious gamers, the X800 runs *Rome*:

Total War at full detail levels without a hitch, and also mustered a stellar 10,181 3D Marks in benchmarking.

But while it boasts unrivalled design and Herculean video performance, the Hush is a surprisingly basic Media Center. You do get a 400GB hard disk, which is nice, but as standard this model features a solitary analogue TV tuner, no built-in Wi-Fi and no memory card reader. Even the remote control is of the older, non-backlit design.

Fine, you're probably thinking, I'll simply tick a few boxes on the website, pay a little bit more money and get all the features my heart desires. But take a second to look at the basic price of this machine. It's well over two grand.

Paying for top notch video performance and quality design is one thing, but the Hush is missing a lot of features that are standard issue on far cheaper models. And until the price is lowered, this silent-but-deadly machine is going to remain languishing among the also-rans.

www.hushtechnologies.net

For Peerless build quality and passive cooling; brawny graphics card	Features ★★★★★ Performance ★★★★★ Connectivity ★★★★★ Design ★★★★★ Value ★★☆☆☆
Against Outrageously expensive; short on features	Verdict Not even the top notch power and build quality can justify the Hush's grandiose price tag. ★★★★★

It's got more fins than a posse of sharks, which spread and dissipate heat. So the Hush has no need for noisy cooling fans.



KEY FEATURES

- ▶ AMD Athlon 64 3500+ processor
- ▶ 1GB RAM ▶ 400GB hard drive

The Mesh's small case features an integrated card reader and a handy set of connections concealed beneath its front flaps.



KEY FEATURES

- ▶ Athlon 64 3500+ processor
- ▶ 1GB RAM ▶ 300GB hard drive

4 MESH MEDIA+ X4 HOME

£1,299

Mesh is one of the few PC manufacturers that uses small form Shuttle cases for its Media Centers. Why more companies don't follow their lead we don't know - the Shuttle XPC is a superb little box that both looks fantastic (check out that brushed black aluminium finish) and manages to stay cool, in spite of its cramped innards. It even features a multi card reader and extra hidden connections. The only drawback is a touch of fan noise and the lack of internal receivers for the remote control and cordless mouse and keyboard.

The Media+ X4 is Mesh's top-of-the-range Media Center, and as such it wields a fair slice of power. There's a beefy 64-bit Athlon processor at the centre of things, along with a gigabyte of RAM and a generous 300GB of hard drive space. The GeForce 6600GT graphics card is also well worth a mention, running the

large scale battles of *Rome: Total War* in silky smooth fashion, and providing a detailed, sharp DVD picture. Also, the Mesh had little difficulty running the high definition *Alexander* trailer, and is an ideal WMV-HD player.

The nForce3 motherboard provides high quality integrated 5.1-channel sound (which for music and movies is more than adequate), as well as a fine set of connections, including a digital audio output if you prefer external decoders.

The system isn't above criticism, though. There's only one digital TV tuner, and no Wi-Fi. Also, Mesh has thrown in a ViewSonic (non-widescreen) monitor and Creative speakers, which while they're decent enough, are unnecessary.

Overall, the X4 is a powerful Media Center system at a competitive price, but its handful of notable flaws prevent it from breaking into the top three.

www.meshcomputers.com

For Small case; powerful specification; good value for money	Against Potentially unwanted extras; no Wi-Fi; some fan noise; just the one digital TV tuner	Features ★★★★★ Performance ★★★★★ Connectivity ★★★★★ Design ★★★★★ Value ★★★★★	Verdict While not perfect, the Mesh is a stylish and highly-specced machine. ★★★★★
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EVESHAM EBOX S

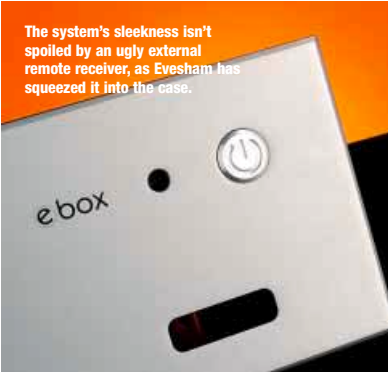
£999

Taking a winning design and shaking it up isn't necessarily easy, but Evesham has made an excellent fist of it with the new, revamped ebox – and it's yours for under a grand



The ebox finished our last media PC Top Ten (see *Digital Home*, issue 19) as overall champ, with its twin digital tuners and low profile form stealing our hearts and sealing pride of place atop the winners' podium. Back then (we have to strain our brains to remember, it was all of five issues ago after all) these were big selling points, especially the twin tuners, a feature which Evesham was among the first firms to implement.

But things move rapidly in the world of technology. Twin tuners are now an optional upgrade on many a Media Center, and the concept of a slim consumer electronics-style design has been embraced by most of Evesham's rivals. And crucially, many of these firms are now implementing it in a more



The system's sleekness isn't spoiled by an ugly external remote receiver, as Evesham has squeezed it into the case.

successful way. The Tranquil, Hush, Elonex Artisan and Hi-Grade machines in our line-up all employ silent cooling techniques, while the Evesham still makes use of a fan.

Additionally, the ebox doesn't feel as well put together as any of these four; while it isn't going to fall apart at the slightest touch, it certainly lacks some of the solidity boasted by its rivals. Still, it remains an extremely attractively designed piece of hardware, with the brushed aluminium front panel likely to attract coos of delight from passing friends and family. The thin, unobtrusive slot for the DVD rewriter is a nice touch, as is Evesham's incorporation of remote control and cordless keyboard IR receivers into the case itself. This helps keep things very neat and tidy, which is probably high on your list of priorities if you're planning to have the machine in the living room.

The included cordless keyboard has a built-in trackball rather than being teamed up with a mouse, so it should go down a treat with couch potatoes. Connectivity is flexible, with DVI and VGA monitor outputs offered alongside digital and analogue audio output options. You also get integrated 802.11g Wi-Fi, although this does require an antenna at the back. One prominent design bum note is the non-appearance of a built-in card reader, which sets this model apart from the machines occupying first and second place.

The ebox's performance reeks with the welcome whiff of solidity. At the centre of the Media Center is a Pentium 4



The ebox also boasts a pre-installed 802.11g Wi-Fi card, allowing you to hook it up to your network in seconds.

processor running at 3.0GHz, backed up with 512MB of RAM and a reasonably capacious 200GB of hard disk space (each of these can be upgraded prior to purchase). Along with these, there's an ATI Radeon X300 graphics card (proving to be a very popular choice with Media Center builders) which, when we rigorously benchmarked it, managed a half-decent score of 1,846 3DMarks.

As with eight of the other models in this line-up, the audio processing is carried out by a chip on the machine's motherboard rather than by a standalone sound card. However, it's of more than acceptable quality, whether you're listening to music, movies or television, and the opportunity to implement 7.1-channel surround sound is not one to be sniffed at.

The dual digital tuners are as useful as ever, allowing you to record one channel while watching a second. Helpfully, the package includes an external device that routes the signal from a single aerial to both RF inputs,

so you don't need to worry about obtaining such a gadget yourself.

The ebox hasn't lost any of its charm and sophistication, and it's fair to say that other manufacturers have simply gained more in the past few months. We felt that it was going to take something special to beat a model that so excelled in design and styling, and it has; this can only be a good thing for consumers.

In the end, Evesham has simply been beaten at its own game by both Elonex and Hi-Grade. The ebox, while still a well put together Media Center, cannot compare to the quality of design displayed by the Artisan and DMS II. Maybe next time. www.evesham.com

For Stylish design; bags of useful features; strong all round performance	Features	★★★★★
	Performance	★★★★★
	Connectivity	★★★★★
	Design Value	★★★★★
Against Outputs a wee bit of noise; lacks an integrated card reader	Verdict	The ebox remains one of the best machines money can buy, but has been eclipsed by its rivals. ★★★★★



It might not run as stealthily as some, but the ebox is as fine-looking a Media Center as you can buy.

KEY FEATURES
▶ 3.0GHz Pentium 4 processor
▶ 512MB RAM ▶ 200GB hard drive ▶ 802.11g Wi-Fi



ELONEX ARTISAN LX

£999

It's mean, it's moody and it wants your media sitting on its hard drive. Elonex's answer to the ebox is finally here, and dang it if it doesn't have the number one spot in its sights



Yes, yes, we know that this is the second Elonex machine in the Top Ten, but please don't take that to mean we're biased towards the company. It just happened that, once we'd had a chance to see its Media Centers in the flesh, we felt there was no way that we couldn't include them both.

The Lumina, a few pages back, is worthy of its place because it's a bizarre but impressive piece of kit – a gamble that paid off, if you like. While the Artisan is here because... well, because it's pretty much everything a Media Center should be.

We don't know this for sure, and we imagine Elonex would never admit to such a thing, but it almost seems like the company's design team has studied the Evesham ebox, copied all the performance-centric bits, improved considerably on the design and styling, put it on sale at exactly the same price and then waited for the consumers to work out that it's a much better offering on which to splash their cash.

Performance and spec-wise, the Artisan LX is almost indistinguishable from the ebox. At the heart of the system is a 3.0GHz Pentium 4, accompanied by 512MB of RAM, an ATI Radeon X300 graphics card, 7.1 channels of on-board sound and a 200GB hard disk. Most of these things are upgradable on the Elonex website.

Unfortunately the Artisan we were sent to put through its paces was an early review sample, which perhaps explains why it wouldn't complete our 3DMark03 benchmark tests and therefore couldn't provide us with a definitive score to compare it exactly to the Evesham. In practice, however, there appears to be little difference in how the two machines run Media Center's various applications. High definition video, music, DVD and TV all tick along smoothly here. There is one notable Media Center-related variation, which is that the basic Artisan has twin analogue tuners, not digital ones. Happily, this is another option that the buyer can change, and the upgrade to dual digital tuners is absolutely free (this will use up another PCI slot, however).

In terms of design, the Artisan has stolen a real march on its similarly-specced rival. The styling says 'consumer electronics' more than any other model in the Top Ten: a moody piano black finish, deftly set off by a blue front LED display and a huge volume control dial. The LED display is initially very impressive, and looks just dandy, but in terms of the actual information it gives you, it doesn't match the one on the Hi-Grade. The case's clean lines also incorporate an internal IR receiver for the Media Center remote control. Like the Hush, Tranquil and Hi-Grade models, the Artisan uses passive cooling, as well as an ultra-quiet hard



Elonex has also added a healthy set of front sockets, and an always handy card reader for digital snappers.

disk, so you won't find fan noise distracting you from that episode of *Desperate Housewives*.

Annoyingly, the receiver unit required for the included cordless keyboard is a separate USB device, so you have to find somewhere to put it while trying not to spoil the Artisan's good looks too much. While we're on the subject, the keyboard (also included with the Lumina) has a very sofa-friendly design, with a thumb joystick negating the need for a mouse.

Integrated 802.11g Wi-Fi and a front card reader come as standard features, while the connectivity is excellent: DVI and VGA sockets, 7.1-channel analogue outputs, both kinds of digital audio output and some real phono connections for in and outputting stereo signals.

If not for the excellence of the Hi-Grade DMS II, the Artisan would certainly not look out of place as overall winner of our Top Ten. Sadly for Elonex, the DMS II is simply a better machine, but we still think that the Artisan's brilliant design and reliable performance make it a truly fantastic Media Center, and a deserving recipient of our Quality Award.

www.elonex.co.uk

For Gorgeous styling; passive cooling; well stocked with features	Features	★★★★★
	Performance	★★★★★
	Connectivity	★★★★★
	Design Value	★★★★★
Against External IR receiver for keyboard	Verdict	Its design and performance are superb, while falling just short of the quality of the Hi-Grade. ★★★★★

The Artisan offers hi-fi looks, a powerful PC in the engine, and a price that doesn't require a second mortgage.

DIGITAL HOME
QUALITY AWARD

KEY FEATURES
▶ 3.4GHz Pentium 4 processor
▶ 512MB RAM ▶ 250GB hard drive ▶ 802.11g Wi-Fi



HI-GRADE DMS II 3400

£1,099



TESTED WITH...

Rome: Total War

The DMS II's X300 graphics card can't cope with the game's marching legions with the settings cranked up to maximum, but it's more than capable of running the huge battles at medium quality.

Despite visual evidence to the contrary, there really is a PC lurking beneath that metal skin, and it happens to be the very best you can buy. Hi-Grade has come up trumps in the design stakes to snatch first prize

Once you've pulled it from the confines of its nondescript box, the first thing you'll notice about the DMS II is the design. With no exaggeration, it's head and shoulders above that of the competition. The feel of quality it exudes is such that even something as finely crafted as the Elonex Artisan pales significantly in comparison. The only other models in the Top Ten that match the physical solidity and toughness of the DMS II are the Hush E3-MCE and the Tranquil e2; the first costs twice as much as Hi-Grade's model, while the second lacks anything like the level of performance that's required to be a top contender in our rundown.



Even discounting these major criticisms, neither of the aforementioned models come close to achieving the overall quality of design boasted by this machine. The DMS II, like the Artisan, has a snazzy LED display on the front, but it's even better than the Elonex's, looking a bit more presentable and providing additional information. Concealed beneath a panel that runs the length of the front, meanwhile, is a wide selection of sockets and a 7-in-1 card reader, along with a nifty joystick-and-buttons combo that allows you to control Media Center (handy if the remote has taken an unplanned trip into the wilderness at the back of the sofa).

And the surprises don't end there. Take a gander at the back panel of the computer and, well, you'll find that it doesn't really look much like a computer at all, looking far more like your average common or garden high-end DVD player. You still get all the usual PC connections, including LAN, modem, USB, Firewire

to be properly mounted into the box, AV-style, rather than on shakey, removable PCI cards like some others we could mention.

We also like the way in which Hi-Grade has styled its model. The case isn't particularly showy or fancy, and it isn't one of the smallest, most compact

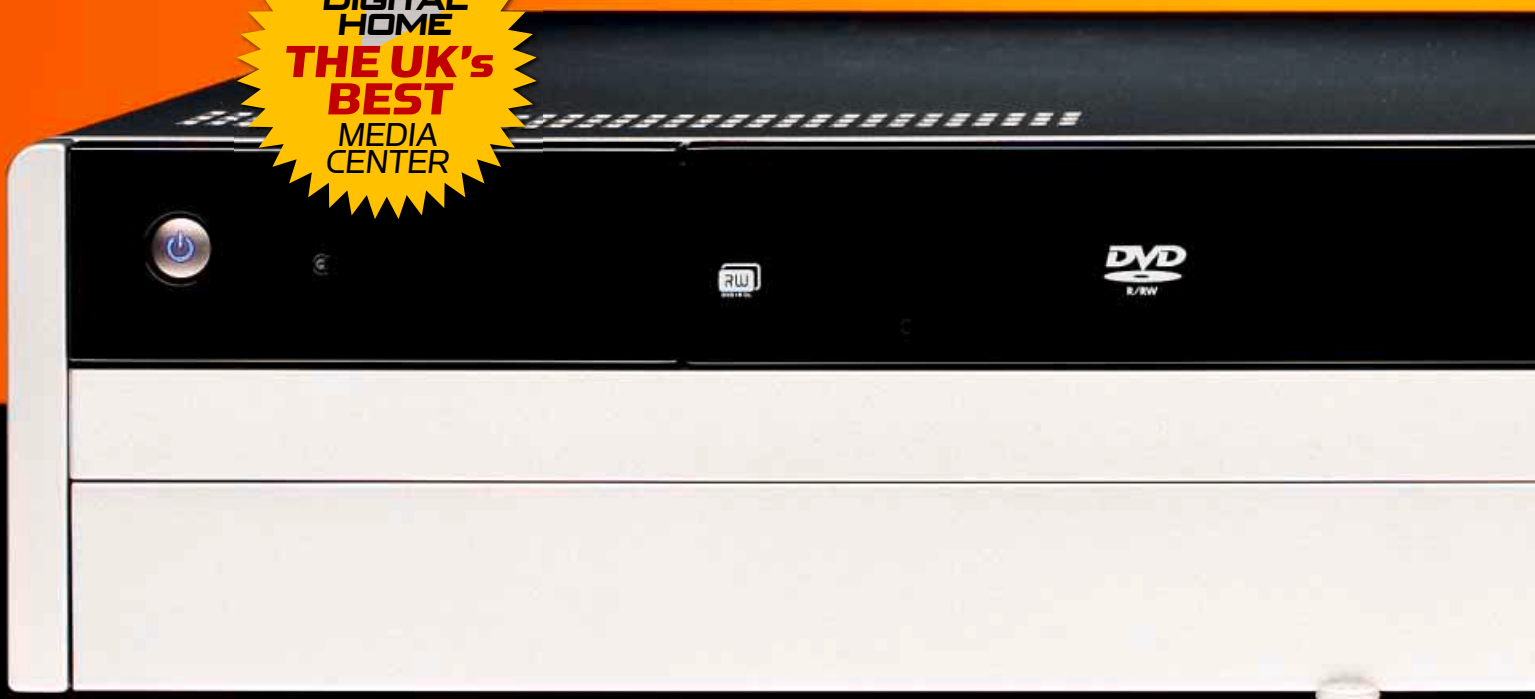
Take a gander at the back panel and you'll find that it doesn't look like a computer at all, it looks far more like a common or garden high-end DVD player

and DVI and VGA monitor outputs, but these have been joined by a full set of phono outputs for 7.1-channel surround sound, as well as digital audio, S-Video and composite video sockets that appear

products here, but it possesses a rugged, elegant look which should fit in effortlessly with most modern hi-fi and home cinema systems. The sleek lines are somewhat spoilt by the need to plonk

Hi-Grade's well-chiselled beast runs silently, performs brilliantly and feels tougher than a panzer.

DIGITAL HOME
THE UK's BEST MEDIA CENTER



the external IR receiver for the cordless keyboard somewhere, however, but at the same time it's worth noting that the Wi-Fi adapter is completely internal. On balance, this makes it one of the tidiest looking machines around.

The DMS II is as whisper quiet as the Artisan, using similar cooling techniques and a clever choice of components – such as the Radeon X300 graphics card – which don't need a fan, rather than relying on the more outwardly obvious, fin-heavy system employed by the Tranquil and Hush models. We can't say with any certainty which of the models cools its components most effectively. Although we have a feeling that the Hush and Tranquil are leading the pack in this respect, the methods employed by Hi-Grade seem perfectly efficient when it comes to the nitty gritty of actually keeping the components cool.

The general feeling of top quality continues once the machine has been plugged in and fired up: with its 3.4GHz Pentium 4 CPU, the DMS II is one of the most capable PCs here when it comes to processing power. If the 512MB of RAM and 250GB hard disk sound pretty unremarkable in comparison, you can always opt to upgrade them (to 2GB and 400GB respectively) on the Hi-Grade website pre-purchase.



The Radeon X300 isn't an especially noteworthy graphics card, true enough, but Hi-Grade has clearly used it primarily because it's passively cooled. What's more, in combination with the other components, it managed a very reputable score of 2,637 in 3DMark03. More importantly, it is an adequate card for Media Center, and, along with the rest of the components, it helps ensure

that the videos and DVD look decent (although it should be noted that, despite the huge amount of processing power at their disposal, none of these PCs can produce as sharp and detailed a DVD picture as you'd get from a top-of-the-range Pioneer or Denon player 'out of the box'; this is primarily a software issue, and surely something for Microsoft to consider when planning the next update of MCE).

Sound quality is also pretty good, although as with most of the machines here, we'd hesitate to call it excellent. With that said, a freshly ripped WMA version of The Kings of Leon's *Aha Shake Heartbreak* certainly sounds serviceable enough through the analogue phono outputs, and we can't imagine anyone but the most discerning of audiophiles having a cause to moan about the audio side of things. These are the sort of people that will happily chuck down six grand on a CD player and then spend their evenings listening to turgid prog rock albums in the dark, so their opinion might not hold much weight with you anyway.

Despite our gushing praise, we can reveal that the DMS II isn't totally free from faults. As well as the external IR receiver already mentioned, there is no option for twin digital TV tuners; you get a dual analogue tuner card instead. By the time you read this, Hi-Grade should be offering buyers a single digital tuner option, but the lack of available space means that two of these can't be fitted at once. The company has said that it expects single PCI Express cards with twin digital tuners to become available at some point later in the year, however.

Aside from this, the DMS II has got the lot. With this brilliant hunk of metal around, there really is no other Media Center in the Top Ten with a credible claim on the coveted number one slot. Hi-Grade, we salute you.
www.higrade.com



KEY FEATURES
► 3GHz Pentium 4 processor
► 512MB RAM ► 250GB hard drive ► 802.11g Wi-Fi

For Masterful design and build quality; powerful processor; excellent range of connections	Features ★★★★★
	Performance ★★★★★
	Connectivity ★★★★★
	Design ★★★★★
	Value ★★★★★

Against No dual digital tuner option; external IR receiver for keyboard	Verdict A solidly built, hugely impressive and almost impeccably designed Media Center. ★★★★★
--	--

What does it all mean?

3DMarks 3DMark03 is software for benchmarking a PC's performance. The rating it gives the PC at the end of the test is called a 3DMark.

AV (audiovisual) Once separate entities, the worlds of AV (home cinema, hi-fi, TV) and computing are now converging. Media Center is probably the most obvious example of this.

Composite video An analogue video connection that runs through a phono lead. Common on AV kit and PCs, its

quality is extremely poor in comparison to DVI and VGA.

Digital audio Digital audio connections (co-axial and optical) that can carry digital audio data in its raw form. Are found on CD/DVD players, AV receivers and increasingly on PCs. Their ability to send multichannel surround sound data down a single cable makes them a popular choice.

Dual tuners Some Media Centers have two TV tuners, allowing you to record

two channels at once, or to watch one channel while recording another.

Sometimes referred to as 'twin tuners'.
DVI A common sight on a PC, the Digital Video Interface is the digital alternative to the analogue VGA video output. You'll find DVI inputs on many monitors, flat panel TVs and projectors.

EPG (Electronic Programme Guide) Media Center has its own 14-day TV listings guide, updated every day via the internet. Offers info on upcoming

shows and is very useful when setting the recorder.

MCE Media Center Edition.

S-Video An analogue video connection. Appears on many computers and AV products, but makes a poor alternative to DVI or VGA.

Wi-Fi A common name for wireless networking. Many Media Centers have integrated wireless connections, usually

running at the 802.11b/g standards.
WMA Windows Media Audio. A compressed digital music format used by Windows Media Player.

WMV-HD A high definition version of the Windows Media Video file format, currently only viewable on a PC. While standard definition is 480 lines (480p) or lower, WMV-HD features content in the 720p and 1080i formats.

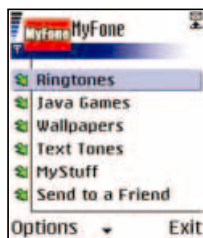
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At a glance	Features	Connections	What we like	What we don't like	Verdict
10 ARIES MEDIA EXPERIENCE 64 £799	Athlon 64 3000+ processor; 512MB RAM; 250GB HDD; DVD-/RW; ATI Radeon X300; 802.11g; 2x digital TV tuners; keyboard and mouse; backlit remote; game pad W430 x H62 x D285mm	6x USB 2.0; 2x Firewire; LAN; VGA out; S-Video in; S-Video out; composite video in; composite video out; stereo analogue audio out; co-axial digital audio out; mic in; serial	Slimline case; low price; decent performance with music and DVD; nice games bundle	Slightly unattractive styling; underwhelming 3D graphics performance; no built-in 5.1 audio decoder; external remote receiver	An average performing Media Center which is made markedly better by its reasonable price tag. ★★★★★
9 ADVENT MC3040 £899	2.93GHz Pentium 4; 512MB RAM; 160GB HDD; DVD-/RW; Nvidia GeForce FX5200; analogue TV tuner; 802.11g; keyboard and mouse; 6.1 speakers; 17-inch LCD monitor W94 x H330 x D435mm	6x USB 2.0; 1x Firewire; LAN; VGA out; S-Video in; S-Video out; 5.1-channel analogue output; serial; parallel; card reader	Built-in Wi-Fi and card reader; decent processing power; choice of placement	Slightly iffy design and styling; truly hideous cordless keyboard and mouse	Lacks the polish of most of the models here, but packs some good features and a moderate performance punch. ★★★★★
8 TRANQUIL PC T2E £910	1.3GHz VIA C3 processor; 512MB RAM; 160GB HDD; DVD-RW drive; onboard graphics and sound; 2x digital TV tuners; fanless design; backlit remote control W375 x H66 x D345mm	4x USB 2.0; 1x Firewire; LAN; VGA out; S-Video in; S-Video out; composite video out; multichannel analogue audio out; mic in; serial	Excellent low profile, AV-style design; passive cooling means silent running; affordable compared to the Hush; dual digital tuners	No widescreen video output currently supported; weedy processor; poor handling of high def video; hopeless 3D graphics performance; no built-in Wi-Fi	A lack of power limits the potential of this wonderfully designed product. As it is, it's a touch disappointing. ★★★★★
7 ELONEX LUMINA £2,250	32-inch LCD; 3GHz Pentium 4; 512MB RAM; 200GB HDD; DVD-/RW drive; ATI Radeon 9600; digital/analogue TV tuners; 802.11g; card reader; keyboard W792 x H620 x D130mm	5x USB 2.0; 1x Firewire; LAN; 5.1-channel audio out; optical digital audio out; mic in; headphone jack	A completely self-contained system; it's a real looker; decent quality LCD screen; nice selection of useful features; wall mountable	Not worth getting if you already own a decent display; cheap-looking remote control; non-upgradable once purchased	A well realised Media-Center-in-a-box, but it certainly won't appeal to anyone who doesn't need a nice big LCD display. ★★★★★
6 HP PAVILION M1260.UK £999 (£810 without monitor)	3GHz Pentium 4; 512MB RAM; 160GB HDD; DVD-/RW drive; ATI Radeon X300; analogue TV tuner; 802.11g; card reader; keyboard and mouse; 2.1 speakers; 17-inch LCD W190 x H380 x D420mm	6x USB 2.0; 2x Firewire; LAN; VGA out; S-Video in; S-Video out; composite video in; composite video out; analogue audio in; 7.1-channel analogue audio out; mic in; serial; parallel	Removable 160GB 'Media Drive' USB hard disk; nice haul of features including integrated Wi-Fi and card reader; excellent Audigy 2 ZS sound card means great audio performance	Large, noisy tower case	There's a long list of things to admire, but the design isn't one of them. Perhaps the z550 will remedy this. ★★★★★
5 HUSH E3-MCE £2,300	Athlon 64 3500+; 1GB RAM; 400GB hard drive; DVD-/RW drive; ATI Radeon X800; on-board 5.1-channel sound; analogue TV tuner; fanless design W440 x H96 x D380mm	4x USB 2.0; 2x Firewire; LAN; DVI out; VGA out; S-Video in/out; composite video in; stereo audio in; multichannel audio out; optical digital out; co-axial digital audio out; mic in; serial; parallel	Unparalleled build quality; passive cooling; beefy graphics card; tons of storage space	Very, very pricey; no twin digital tuners as standard	An excellent performer, but too low on extra features and too high on price to place higher in our line-up. ★★★★★
4 MESH MEDIA+ X4 HOME £1,299	Athlon 64 3500+; 1GB RAM; 300GB HDD; DVD-/RW drive; Nvidia GeForce 6600GT; Realtek sound; digital TV tuner; keyboard and mouse; card reader; 19-inch TFT monitor W200 x H190 x D310mm	4x USB 2.0; 1x Firewire; LAN; DVI out; VGA out; S-Video in; S-Video out; composite video out; multichannel analogue audio out; optical digital audio out; mic in; serial; parallel	Compact and stylish Shuttle case; decent processor, memory and graphical power; plenty of hard disk space; excellent cordless mouse and keyboard	Only one TV tuner; no Wi-Fi; monitor and speakers push up the price; emits a bit of fan noise; external IR receivers	Powerful with plenty of storage and a nice design. A couple of drawbacks stop it from gaining a higher spot. ★★★★★
3 EVESHAM EBOX S £999	3GHz Pentium 4; 512MB RAM; 200GB hard drive; DVD-RW drive; ATI Radeon X300; 7.1-channel sound; 2x digital TV tuners; 802.11g; keyboard; backlit remote W433 x H92 x D380mm	6x USB 2.0; 1x Firewire; LAN; DVI out; VGA out; S-Video in; S-Video out; 7.1-channel analogue audio out; optical digital out; line in; mic in; serial; parallel	Small, sexy case with integrated IR receivers and Wi-Fi; twin digital tuners; nice price to power ratio	Some fan and hard disk noise; no card reader; build quality not up to the standards of some rivals	A nicely styled machine, but Hi-Grade and Elonex have – this time – outdone Evesham at its own game. ★★★★★
2 ELONEX ARTISAN LX £999	3GHz Pentium 4; 512MB RAM; 200GB hard drive; DVD-/RW drive; ATI Radeon X300; on-board sound; 2x analogue TV tuners; 802.11g; built-in card reader W102 x H54 x D32mm	6x USB 2.0; 1x Firewire; LAN; DVI out; VGA out; S-Video in/out; composite video out; stereo phono in/out; multichannel audio out; co-axial digital out; optical digital out; mic in; serial; parallel	Excellent design and quiet cooling; integrated Wi-Fi and card reader; superb connectivity; good value for money; nice cordless keyboard	External IR receiver for keyboard	In a world without the DMS II, Elonex's masterpiece would be worthy title holder. As it is, the design pips it to the post. ★★★★★
1 HI-GRADE DMS II 3400 £1,099	3GHz Pentium 4; 512MB RAM; 250GB HDD; DVD-/RW drive; ATI Radeon X300; on board 7.1-channel sound; 2x analogue TV tuners; built-in 802.11g Wi-Fi; built-in card reader W430 x H100 x D395mm	4x USB 2.0; 3x Firewire; LAN; DVI out; VGA out; S-Video in/out; composite video in/out; 7.1-channel audio out; optical digital out; co-axial digital out; mic in; headphone; serial; parallel	Plenty of power; excellent build quality; handsome styling; lovely front display; silent cooling; dizzying array of connections at front and back; decent value for money	Dual analogue TV tuners only at present; integrated IR receiver for cordless keyboard would have been nice	The best Media Center yet. Value for money, great performance and inspired design puts it in pole position. ★★★★★



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great choice.
features the
DirectX 9
g games), plus
o boot. The
a PCI slot, as
hics port) slot
45 quid? It's
ike that. If



(STEP 3) WHAT A CARD

You need to choose a suitable TV card for your needs. If your PCI slots are already full of other gubbins, such as FireWire ports or Ethernet cards, then you might want to consider a USB unit. Otherwise, we'd recommend a PCI model – they won't clutter up your desk, and they're generally a wee bit cheaper than their USB counterparts. We'd recommend heading to online retailers to find the best deals – try www.dabs.com and www.komplett.co.uk.

(STEP 4) OPEN THE PC CASE
Lay your PC on its right-hand side. There are multiple chassis designs, so you may find that you need to unscrew the back of the case to get it open. Remember – for any PC upgrade, use non-magnetic screwdrivers, to avoid damage to sensitive components. Also, ground yourself before touching any components. You can do this by touching the copper pipe at the back of the case.

May 2005

www.computerupgra

I've just nipped down to the PC store to get a TV tuner. Finally decided to turn our PC into a Media Center - this new mag makes it look easy! See you later.

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How to...

Get the most from online music stores 78

Buying music online is easy, but be aware of the playback restrictions. *James Morris* takes you on a tour of stores, files and formats.

Understand DVD formats 82

Your choice of DVD format ultimately affects the disc's compatibility. *Ian Calcutt* explains how to tell your DVD+RWs from your DVD-RAMs.

Get more from your Media Center PC 84

Are you getting the most from your Media Center? *Richard Hill* reveals his tips and tricks for improving Microsoft's multimedia OS.

Get started with VoIP 86

With a VoIP service you can make free phone calls over the Internet. *Richard Cobbett* signs up to Skype to show you how.

PLUS Q&A: your questions answered 74



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CHRIS PRICE
A technology journalist specialising in hi-tech homes, Chris founded www.tech-digest.co.uk and contributes to the *Daily Mirror* and the *Guardian*. He edits the Q&A section with Gordon.



GORDON LAING
Journalist and former Editor of *Personal Computer World*, Gordon is a self-confessed techie and has just published his first book, *Digital Retro: the Evolution of the Home Computer*.



JAMES MORRIS
James is the former editor of *PC Pro* and wrote the *Convert your PC into a Media Center* feature in last month's issue. What he doesn't know about online music isn't worth knowing.



IAN CALCUTT
Former editor of *Home Entertainment* magazine, Ian now contributes regularly to *Digital Home* and several home cinema and entertainment titles. His expertise lies in big-screen technology.



RICHARD HILL
Richard was editor of the magazines *Mobile Computer User* and *WAP*, is a long standing contributor to *Digital Home* and *T3*, and has written one book, *Simply Mac OS X*.



RICHARD COBBETT
Features Editor on *PC Plus* magazine, Richard regularly wanders the Internet in search of the quirky and the free. He is fascinated by how new Internet services can be used in the digital home.

Q&A

Encoding videos for PDAs, dual-layer DVD compatibility and the continuing rise of Microsoft's Media Center software...

ENCODING VIDEO FOR PDAS

I've seen people watching videos on their PDAs and wondered how you go about doing this? I've got an HP iPAQ 4150 Pocket PC that has Media Player software, but so far I've only used this for playing music. Can I use Media Player on the PDA for video too?

Tom Harris

Yes, the software on your Pocket PC can play videos, and with the unit turned on its side and the picture filling the screen, it can rival dedicated portable video devices. The biggest problem you'll have is the shortage of memory space. Even after video compression there won't be enough room in

Player unsurprisingly prefers videos in Microsoft's own Windows Media Video (WMV) format, but it's easy to convert files if necessary. Windows Media Player 10 can automatically convert a video file using its Sync option – just connect your PDA. If you're not already running Media Player 10, it can be downloaded free from Windows Update.

Windows Movie Maker can also export videos in WMV format optimised for use on Pocket PC PDAs. Use the option to save it to your computer, then tick the later option to show other settings – here you'll see presets optimised for the Pocket PC. If you're after something more sophisticated,

quality. For example the popular DivX video format can produce high quality results, and with the right software can also be played on Pocket PC PDAs. To encode (or watch) DivX files on your PC, you'll first need the DivX codec; if you don't have this installed, visit www.divx.com/divx and download the third option at the bottom of the screen – this is the free DivX codec.

Now you'll need encoding software; while DivX's own Dr DivX software is excellent, we've found a free alternative that's great for PDAs. The appropriately-named Pocket DivX Encoder can convert many video formats into DivX and optimise them for a number of portables including Pocket PCs and Palm OS PDAs. It offers a number of complex looking options, but produces great results if you just open your file and click the Direct Encoding button. Again the encoding process can take some time depending on the length of the clip and the speed of your PC.

Since Microsoft's Pocket PC Media Player won't play DivX files, you'll need to install additional software on your PDA. Sadly, you can't just download the DivX codec for your PDA; instead you'll need a new media player with a built-in codec. One of the best, which is also free, is Betaplayer (see the recommended products). Download and install it, then copy the DivX AVI file from your PC on to the memory card.

Before your PDA can play a video file, convert it into a format it can understand

your PDA for much more than a few minutes.

Luckily most PDAs can take memory cards and these days they're not expensive: a 256MB SD card for your iPAQ from Crucial costs just £17.61 and could store around two hours of reasonable quality compressed video. You could, of course, buy a bigger card for longer playing times, but your PDA's battery life may restrict you to a couple of hours of video playback – that's still enough for many journeys, though.

Before your PDA can play a video file, it must be converted into a format it can understand. The standard Pocket PC Media

visit www.microsoft.com/windowsmedia and download the free Windows Media Encoder. This also offers preset modes for Pocket PCs.

Depending on the speed of your PC and the length of the video, the file may take several minutes to several hours to encode, after which you can copy it to the card using a card reader, or with the card inserted in the PDA and the unit connected to your PC.

While WMV is the obvious choice for use on Pocket PCs due to compatibility with its built-in Media Player, there are other options that are more flexible and deliver better



With the aid of a decent memory card and some free software, it's possible to turn your PDA into a respectable portable video player.

We've found the video quality is better than WMV and the file sizes often smaller too. Owners of Palm OS PDAs can download MM Player to watch DivX files.

Note that under UK copyright law it's illegal to copy commercial DVD movies to your PDA, or any other device, without the content owner's permission. Products such as PocketDVD Studio allow you to effectively 'record' a DVD in real-time, thereby avoiding the breaking of its CSS encryption system, but you're still making an unauthorised copy. In the UK, this is a civil offence that carries the risk of being sued by the content owner.

Quick tip

Palm PDAs often struggle to play back DivX files, but the Kinoma player (www.kinoma.com) can provide a powerful and quality alternative.



RECOMMENDED PRODUCTS

Crucial 256MB SD card **£17.61**

www.crucial.com/uk

Windows Media Encoder

www.microsoft.com/windowsmedia

DivX codec www.divx.com/divx

Pocket DivX Encoder

<http://divx.ppcocool.com>

Betaplayer <http://betaplayer.org>

corecodec.org

MM Player www.mmplayer.com

PocketDVD Studio **approx £20**

www.pqdv.com

DUAL-LAYER DVD COMPATIBILITY

I'm interested in writing dual-layer video DVDs using my PC. Are there any compatibility issues when it comes to playing them in normal DVD players?

Benny Francis

Dual-layer DVD blanks written using a PC should work fine in standard DVD players.

rewritable dual-layer is unlikely to happen in the future. We're much more likely to graduate straight to rewritable HD-DVD or Blu-ray PC drives.

RECOMMENDED PRODUCTS

NEC ND-3520A **£38**

www.dabs.com

Nero 6 Reloaded **£35**

www.nero.com

Quick tip

DVR-edit is a neat utility that enables you to remove unwanted padding or adverts from TV shows recorded by Media Center. Go to www.thegreenbutton.com.

DIGITAL TV SWITCHOVER

I live in Yorkshire and was reading recently about the analogue switch-off due in my area in 2010. I have Sky Digital on one TV set, but only ordinary analogue TVs around the rest of the house. Is there a cheap and simple way of sending the digital satellite signal from my Sky Digibox around the rest of the

house, or will I need a digital terrestrial box for each of my TVs?

David Knowles

The cheapest and simplest solution to watching Sky TV throughout the house is by connecting an aerial cable from the RF2 output of the Sky Digibox to a second TV set. For additional TV sets it's best to use a distribution amplifier such as the Global T140 four-way model.

The problem with this solution, however, is that you'll only be able to watch the same

each extra card.

However, installation is free.

Of course, it's much cheaper to buy a digital terrestrial set-top box for your additional TVs (which cost around £50 each), but then you obviously won't get the same number or range of channels.

RECOMMENDED PRODUCTS

Global T140 distribution amplifier

£24.99 www.parabolic.co.uk

Sky Multiroom **£10** www.sky.com

If you want to watch different Sky channels on separate TVs you'll need a quad LNB

digital channel throughout the house. If you want to watch different channels on up to four separate TVs you'll need a quad LNB (the same one that is used for Sky+), as well as additional subscription cards. Sky now offers a multiroom set-up (see www.sky.com/multiroom for details) costing £99 for each additional Sky box plus £10 for

EDITING MEDIA CENTER'S TV RECORDINGS

I'm building up quite an archive of recorded TV shows using my Windows XP Media Center PC. It's nice to be able to go back and view old favourites, but is there any way to edit them so there's no padding on either side, or indeed remove the adverts? It'd be more

So far we've found no compatibility issues using dual-layer blanks on domestic DVD players, as long as they contain standard DVD video files of course. The only things you'll need are a dual-layer DVD writer such as the NEC ND-3520A, and software that can exploit the additional capacity of dual-layer media such as Nero 6 Reloaded – make sure you have the latest version for DL compatibility.

As for blank media, there are two formats to choose from: DVD+R9 and DVD-R DL. Like single-layer +R and -R blanks, there's little to recommend one over the other; ensure your writer is compatible before buying blanks, however, as early dual-layer models can only write on +R9. Also note that dual-layer blanks are currently write-once only and

TOP TIPS

Improving your home cinema sound

1 Get the best cables

Don't use the cheap cables packaged with your AV amplifier. Set aside a good portion of your budget for high quality speaker cables.

2 Bi-wire your speakers

If the connections are provided, use two pairs of cables to connect each speaker to the amplifier (a process known as bi-wiring). This keeps high and low frequencies separate, resulting in a cleaner, less distorted signal.

3 Protect your speakers

Make sure that any speakers that are going to be placed next to a television with a traditional CRT display are magnetically shielded. This will help to prevent possible damage.

4 It's all about 'positioning'

It's crucial that you set up the front left and front right speakers for good stereo reproduction. Try to site the centre speaker at the same height (or as near as possible) as the tweeter on the left and right speakers.

5 Professional tuning

Although it is possible to set individual speaker levels by ear, a much more accurate result can be obtained with a sound pressure meter. These cost around £40 and are very simple to use.

6 Running speakers in

New speakers do take some time to bed in. Leave them for a couple of weeks before deciding to make any serious sound adjustments.

7 Wireless surround

For the best purity and quality of surround sound effects, it's still best to avoid wireless surround sound speaker systems (available from companies such as Sony, Samsung and Pioneer) if at all possible. This is still new technology and sound quality still tends to be a lot more 'hissy' than if you are using cabled surround sound speakers.

8 Single speaker surround

Advances in speaker technology now allow faked surround sound to be generated from a single front speaker. Yamaha's YSP-1, for example, features two woofers sited either side of an array of 40, 4cm beam speakers. These project the sound into the room, bouncing it off of rear walls to create a surround effect.

WIN! A YEAR'S BROADBAND

Write into Digital Home's Q&A forum and you could win a year's FREE 512Kbps broadband internet access from Freedom2Surf. The 'Pure IP Home User' package features uncapped downloads, and is worth £22.50 per month. We'll also throw in a modem and installation.

Send your problems and queries to digitalhomehelp@futurenet.co.uk www.freedom2surf.net



convenient, and of course free up some space on my disk too.

Jon Miles

Windows XP Media Center Edition records TV shows using Microsoft's proprietary DVR-MS format; the problem is finding a program that understands this. Luckily there's at least one third-party utility that can do what you're after.

Click the Download Center link at The Green Button website and choose DVR-Edit

do the rest. DVR-Edit is also supposed to be able to convert DVR-MS files into the standard MPEG-2 format, but at the time of writing this feature had not yet been implemented.

RECOMMENDED WEBSITE

The Green Button

www.thegreenbutton.com

ALL-IN-ONE RECORDER PRODUCTS

I have a few questions regarding recording on DVD. Firstly, if I buy a DVD recorder now, will it be able

Unfortunately current DVD recorders won't be able to read Blu-ray or HD-DVD discs. CDs and DVDs use a red laser, while the next-generation of discs use a higher frequency blue laser to read/write information. Once Blu-ray and HD-DVD appear, we expect you'll be able to buy dual-format DVD recorders that feature both blue and red lasers for maximum compatibility.

As for DVD format terminology, there's actually a tutorial in this issue that explains all the technical differences between the main disc formats, see page 82.

Lastly, if you want a combined DVD/VHS/HDD system, take a look at the JVC DR-MX1SEK.

This brand new machine provides an olde-worlde VHS deck, a DVD-R/RAM drive and an 80GB hard disk drive, all in one handy unit.

RECOMMENDED PRODUCTS

Panasonic DMR-E85H £430

www.panasonic.co.uk

Toshiba RD-XS32 £419

www.toshiba.co.uk

JVC DR-MX1SEK £TBA

www.jvc.co.uk



The Linksys WMC54AG is one of the first Media Center Extenders, designed to stream content from XP Media Center Edition PCs. We've seen it, used it, and sent it back!

MEDIA CENTER EXTENDERS

I recently bought a PC running Windows XP Media Center Edition 2005 and want to watch my recorded TV shows in another room. I know various digital media adapters are available for streaming media from a PC to TVs, but wondered whether any work with XP MCE's TV recordings? I heard there were specific models for use with MCE, but can't find them in any shops.

Simon Mansell

Windows XP Media Center Edition (MCE) records TV shows using MPEG-2 video, but then embeds programme information and saves them in a file format called DVR-MS. Today the only devices that can stream these files are the Media Center Extenders. These can

be stream recorded (or live) TV shows, photos or music from a Media Center PC over a home network. They also employ the same on-screen menu as a Media Center PC, and you can even fire-up the EPG and schedule new recordings.

Unlike a Media Center PC though, Extenders won't stream DivX or XviD videos, or any video format other than MPEG-1, MPEG-2 and WMV. Annoyingly they won't stream a DVD that's inserted into your MCE PC either, and only output standard definition TV signals.

If you still like the sound of them though, there's currently three models to choose from: two are set-top boxes made by HP and Linksys (costing around £200), the third is software that runs on the Xbox games console. Costing about £40 the latter seems like a bargain, and of course the console itself can play games and DVD movies. On the other hand, the set-top boxes run silently and include both component outputs and wireless connectivity as

Once Blu-ray and HD-DVD appear, you should be able to buy dual-format recorders

from the list. This small and simple program enables you to open any MCE recording and crop it from either end, down to frame accuracy. It's also possible to use mark-in and mark-out controls to remove advert breaks in the middle of a recording. Once you've set your markers, all you have to do is save the file and DVR-Edit will

to play future Blu-ray discs and HD DVDs? Also, can you tell me whether an all-in-one system featuring a hard disk drive and DVD and VHS decks exists?

Finally is there a good website that can explain all the terminology used in DVDs - for example DVD+R, DVD+RW, DVD-RAM, DVD-R, DVD-RW and DVD-ROM.

Peter Day

Quick tip

Buy a big TV with a DVI port. Sky's forthcoming HD service will support 720p and 1080i resolutions, but will limit connectivity to TVs with HDMI or DVI.

NAPSTER VERSUS ITUNES?

I want a digital music player with easy-to-use software to transfer my huge CD collection. I also want to download music legally from websites. I like the idea of Napster's service where you subscribe to download as many tracks as you want, but I've read that I'll need a special digital music player; if I get a Napster-compatible player will it work with other music services such as iTunes?

The Napster To Go subscription service is controversial; for £15 a month you download unlimited tracks but you never own them - Microsoft's Digital

Rights Management is embedded. You need a certain digital music player, such as Creative's Zen Micro or a portable media center (see www.napster.co.uk/compatible_devices). If you stop subscribing to Napster, downloaded tracks won't play or burn to CD. To transfer your CDs we suggest Apple's iPod, but it can't play Windows Media Audio files (unless you convert them) and tracks from the iTunes store are encoded with Apple's FairPlay DRM, so they can't play on other devices. To put Napster tracks on an iPod you need to burn them to CD first and import them to iTunes.



JARGON BUSTER

Codec Short for 'compression/decompression'. Basically an algorithm or system of rules to encode/decode video.

DRM Digital Rights Management. Technology used to securely deliver content for playback on a computer, portable device, or network device.

DVD-RW DVD Rewritable. A rewritable DVD format, similar to DVD+RW, with a read-write capacity of 4.7GB.

DVD+RW A 4.7GB rewritable DVD format and rival to the DVD-RW format. DVD+RW discs cannot be read in all DVD players.

DVI Digital Visual Interface. Created by the Digital Display Working Group (DDWG), DVI is a form of video connector initially made to maximise display quality of flat panel LCD computer monitors and high end video cards. Now found increasingly on AV products such as projectors and plasmas.

HDCP High-bandwidth Digital-Content Protection. A specification developed by Intel for protecting digital entertainment content that uses the DVI interface.

HDMI High Definition Multimedia Interface. Industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any audio/video source, such as a set-top box, and an audio and/or video monitor, such as a television.

VoIP Voice Over Internet Protocol. Technology which uses Internet Protocol for delivering voice information. This means sending voice information in digital form in discreet packets rather than in the circuit-committed protocols of the public switched telephone network (PSTN). A major advantage of VoIP is that it avoids the tolls charged by ordinary telephone services.

standard. Unfortunately, all three products are currently only available in the US, and Microsoft has not yet made any plans to convert them for launch in the UK.

It's possible to import both the set-top boxes and the Xbox software though, and (with some caveats) get them working in the UK. For example, the set-top boxes output NTSC video, but most UK TVs will happily lock on to this signal. The Xbox software is an additional challenge as it will only run on UK consoles that have mod-chips. In a future issue we'll go into this in more detail.

Another option to consider is to stream your Media Center shows to another PC. There's a download on Windows Update that enables Media Player on a Windows XP system to play the DVR-MS video format. It's also possible to open these directly over a network into Windows Media Player. Windows Update can be found in the Programs section of your XP Start Menu.

There shouldn't even be any need to copy or move the recordings into a shared network folder either. By default XP MCE should save TV shows in a folder called Recorded TV, which is in the main Shared Documents folder. Simply browse to this Shared folder using your other PC and you'll be able to directly open and play your TV recordings.

Additionally if you want to schedule recordings from a different machine over the network, try running Remote Desktop Connection, found under the Communications section of Accessories under the Start Menu of XP Professional systems. This program enables you to access your MCE PC in a window and effectively operate it by remote control. You won't be able to watch videos, but you can fire up the guide and schedule recordings. Until Microsoft launches the MSN Remote service for MCE in the UK, this is one of the only ways you can remotely schedule recordings.

RECOMMENDED PRODUCTS
Linksys WMC54AG www.linksys.com
(This extender is not yet available in the UK, as Microsoft needs to convert



Pioneer's latest range of plasma screens are all fully HDTV compatible.

CHOOSING AN HD PLASMA SCREEN

I am looking to buy a plasma screen but have read recently about them being incompatible with high definition TV channels when they launch. Is this true? If it is true, how do I make sure that I buy a plasma screen that's fully compatible with future HD services? There seems little point shelling out a few thousand pounds, only to find out in a couple of years' time that the screen is useless.

James Boxer

The problem is that the minimum HD resolution is 1,024 x 720 lines and many cheap plasmas only display VGA resolution (640 x 480) – this is lower quality than today's PAL standard (576 visible lines). Although it

may be possible to view HD pictures on a cheaper VGA screen, you'll only see them in low definition, which defeats the object. Ideally go for a 1,024 x 720 (XGA) resolution screen or, better still, a 1,280 x 1,080 (SXGA) or 1,920 x 1,080 (Wide SXGA) model. For Sky's proposed HD service (due next year), you'll also need a plasma screen with either HDMI or HDCP-enabled DVI connections (see Jargon Buster). Unfortunately, this limits your choice of plasma screen even further as many units don't have these sockets on board.

RECOMMENDED PRODUCTS
Pioneer PDP-505XDE £3,999
www.pioneer.co.uk

Skype that can make calls for free over the Internet. How does this work and will it save me money? Do I need to use my PC to make calls, or can I use a normal phone?

Stella Price

Skype (www.skype.com) uses VoIP technology (see Jargon

make calls, so you will either have to use the microphone in your PC or a special VoIP phone, such as Firebox's Cyberphone that hooks up to your PC via a USB connection. Additionally, you will have to pay for calls to people who are not Skype subscribers.

Another service worth investigating is Gossiptel (www.gossiptel.co.uk). Like Skype, it uses VoIP technology, but you don't need your PC on to make voice calls. Instead, a special adapter connects to your PC's Ethernet port. You then simply plug your existing wired (or DECT) phone into the adapter to make and receive calls.

RECOMMENDED PRODUCTS
Firebox VoIP cyberphone £30
www.firebox.com
Sipura 2000 adaptor £80
www.gossiptel.co.uk

Calls between Skype users are free, wherever they happen to be in the world

it to PAL. However, we reviewed it on import back in issue 23.)

WHICH VOICE OVER IP SERVICE?

I work from home and make a lot of phone calls during the day, for which I pay BT a fortune. I read of a service from a company called

Buster) to transmit voice over a standard broadband internet connection. Again, we've got a tutorial on how to do this on page 86. Calls between Skype users are completely free wherever they are in the world. The problem is that you still need to connect via your PC to

How to get the most from online music stores

Never go to a record shop again – you can get all the music you ever wanted over the internet

DIFFICULTY INTERMEDIATE **TIMESCALE** THE REST OF YOUR MUSIC-LOVING LIFE **KIT REQUIRED** DESKTOP COMPUTER (PC OR MAC), INTERNET CONNECTION (BROADBAND RECOMMENDED), CD BURNER (OPTIONAL), PORTABLE MUSIC PLAYER (OPTIONAL)

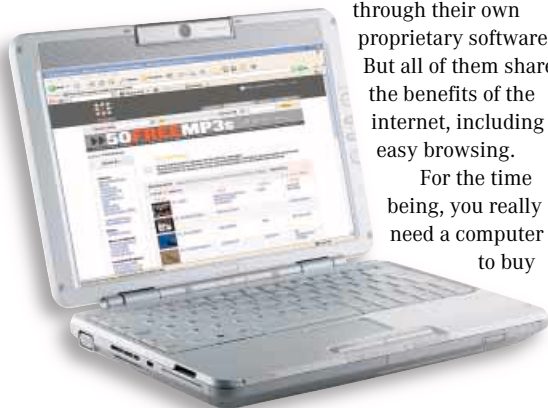
The internet has had a big effect on the way we buy things. Last Christmas, for example, online sales were up 20 per cent year on year. But the internet's biggest impact has been on the entertainment industry.

In the US, 130 million songs were bought online in 2004, up from 19 million from the year before. Total sales amounted to more than \$158 million – quite a chunk considering legitimate sales only started in 2003. So despite the continuing availability of less salubrious peer-to-peer music downloads, legitimate online music sales are going strong, showing that people really were willing to pay money for music downloads – they just needed to be given the option.

Despite arriving in the UK only this time last year, online music stores are already coming out of the woodwork. Windows Media Player now has six services integrated, and there are still more accessible

through their own proprietary software. But all of them share the benefits of the internet, including easy browsing.

For the time being, you really need a computer to buy



music online, although the facility may be built into set-top box devices in the future, and a limited version is starting to appear on mobile phones. If you plan to listen to your downloads on the road, you'll want a portable music player as well. You'll also find a CD burner useful, so you can make compilations and burn albums to play on your hi-fi and in the car.

Online music stores hit the US well before the UK. But that's meant that we've avoided some of the teething problems, such as the limited numbers of songs on the initial services. Plus, advanced options like Napster To Go have launched at the same time in the US and UK.

Now that there are so many alternatives, choosing between online music services has become a quagmire.

Wanadoo Music Club, Tiscali and MSN Music all price tracks at just 69p, while Tesco's Download Store, iTunes and Napster charge 79p a track. And in most cases, you can listen to 30 seconds of a track for free.

There will be some music that's exclusive to a particular store, leading you to favour that vendor, but your choice of music player could be a deciding factor as well. The iPod, for instance, only plays AACs and MP3s, plus a handful of uncompressed formats. And it doesn't support WMAs, so most Windows Media-based music services aren't compatible. If you find the music you like isn't available on iTunes, you'll have to turn to the likes of Creative and iRiver for your player.

In the main, online stores sell protected content. This functions via Digital Rights Management, and permits certain activities, such as listening to the file on your computer and burning it to CD.

The main formats used by online music services, therefore, are not open standards. The most prevalent file types are WMA and M4P. WMA is a proprietary Microsoft format, and an M4P file is a protected version of AAC, and is essentially exclusive to iTunes.

Other music formats you may come across are MP3Pro, Ogg Vorbis and Real Audio. MP3Pro files

With so many alternatives, choosing an online service has become a quagmire

require specialised software to get the full benefit, although they can be played by any MP3-capable software with reduced quality. Ogg Vorbis files will require extra software to play, too. But neither format offers DRM, so aren't favoured by online music stores.

Sony is the wild card with its MiniDisc-oriented ATRAC compression format. Other than MiniDisc players plus Sony's own portables and SonicStage software, precious little will play ATRAC files. So Sony Connect hasn't met with much critical acclaim so far, despite the technical excellence of the format. Sony certainly hasn't created the perfect competition to the Apple iTunes/iPod combination.

The major UK online music stores at a glance

	Napster	Napster Light	Napster To Go	Apple iTunes	MSN Music	Sony Connect
Monthly subscription	£9.95	N/A	£14.95	N/A	N/A	N/A
Tracks per month (downloaded)	Unlimited	N/A	Unlimited	N/A	N/A	N/A
Tracks per month (streamed)	Unlimited	N/A	Unlimited	N/A	N/A	N/A
Cost per track	£0.79	£0.79	£0.79	£0.79	£0.69	£0.99
Cost per album	£7.95	£7.95	£7.95	£7.99	£6.99	£7.99
Cost per play	N/A	N/A	N/A	N/A	£0.01	N/A
Tunes available	1,000,000	1,000,000	1,000,000	800,000	400,000	500,000
File formats	WMA	WMA	WMA	M4P	WMA	ATRAC
Portable players supported	See page 79	N/A	See page 79	Apple iPod	See page 80	Walkman
DRM technologies used	Windows Media 10	Windows Media 10	Windows Media 10	Apple Fairplay	Windows Media 10	Open MagicGate
Website	www.napster.co.uk	www.napster.co.uk	www.napster.co.uk	www.apple.com/itunes	www.msn.co.uk/musicclub	www.connect-europe.com

How the stores compare

Napster/Napster To Go

Napster Light

Price 79p per track, £7.95 per album
Tunes available One million
File formats WMA
Portable players supported Most Windows Media compatible devices – see www.napster.co.uk/compatible_devices/index.html for more details
DRM technologies used Windows Media 10

Napster

Price £9.95 per month
Tunes available One million
File formats WMA
Portable players supported N/A (track purchase required)
DRM technologies used Windows Media 10

Napster To Go

Price £14.95 per month
Tunes available One million
File formats WMA
Portable players supported Creative Zen Micro, Creative Zen Portable Media Center, Audiovox SMT5600 Smart Phone, Dell Pocket DJ, Gateway MP3 Photo Jukebox, Iriver PMC-120, Samsung YH-999 Portable Media Center
DRM technologies used Windows Media 10
www.napster.co.uk

Napster is the most well-known brand in music downloading, having started off the whole craze back in 1999. The original service created by Shaun Fanning was eventually shut down in mid-2001 under legal pressure from the RIAA (Recording Industry Association of America). But Roxio bought the rights to the name and reanimated it in the US as Napster 2.0 in October 2003, although by then Apple's iTunes had become the first legitimate online music store.

However, Napster and iTunes launched almost simultaneously in the UK, and they've traded blows ever since. Napster is slightly ahead in terms of raw track count, claiming to have a million tracks available. But iTunes has the indubitable draw of the iPod in its favour, which has been one of the consumer electronics successes of the millennium so far. We've still given Napster the greatest space in this article – not necessarily because it's the best service, but it does have a number of unique features, at least compared to other online music stores in the UK.

First of all, unlike other music stores, Napster now has three modes – the basic Napster Light plus two subscription services. With the Light version, Napster is similar to most online music stores. You can try 30 seconds of a track, then purchase it to hear the rest.

But with the £9.95 subscription version of Napster, you can listen to every track on the service in its entirety. These can either be streamed directly, or downloaded locally to up to three different systems. In the US, there are other services offering similar

facilities, such as Real's Rhapsody. But in the UK, the Napster subscription service is unique, its only competition being the 1p-per-play options that are provided by some stores.

Music to go

With its premium Napster To Go service, though, Napster has gone one better still. For £14.95 a month, Napster To Go extends the licence to play music downloaded as part of the subscription service on to certain selected portable devices. The list of compatible portables is pretty short for the time being, but support is likely to be a checkbox in most future hardware.

Accessing any of these three versions of the Napster store requires the Napster 3 application,

Napster and iTunes launched almost simultaneously, and they've traded blows ever since

which is a free 11MB download. There's also a plug-in Napster for Windows Media Player 10, and a TV-friendly version built into the Windows XP Media Center Edition 2005 operating system. You can search the music database via www.napster.co.uk without the app, but you can't access any content using a web browser. The full Napster app works as a standalone jukebox, as well as offering access to the shop, and can rip CDs to WMA or MP3 with an extra plug-in. It has decent library management, and CD burning plus simple label creation are also built in.

Napster's subscription services may seem like a music-lover's heaven, but they do have one drawback – you can't guarantee that tracks will always be available. Although digital music is unlikely to be deleted from a store's catalogue due to supply or space constraints, it is susceptible to the vagaries of business deals between the record companies and online shops. We've seen albums disappear from Napster. If you've already purchased the tracks, you'll still maintain your existing rights. But with the subscription service, you'll no longer be able to play the songs – even if you've downloaded them to your hard disk. And if you cancel your subscription, all your downloaded tracks will become unplayable.

In its Light format, Napster is also far from revolutionary. At 79p a track and £7.95 an album, it's not the cheapest around. However, Track Pack bundle deals bring prices to a level comparable to the cheapest alternatives. You can pick up 50 tracks for £33.99, which works out at 68p each, with 25- and 10-track options successively less good value.

With its one million tracks, Napster is clearly one of the most comprehensive online music shops. If you like the songs it has available, one of its subscription services could well give you all the music you'd ever need. However, for those to whom the subscription model doesn't appeal, Napster's track and album prices aren't as low as MSN, Tiscali or Wanadoo, making one of these the cheaper option if it has your chosen songs available.



Apple iTunes

Price 79p per track, £7.99 per album
Tunes available 800,000
File formats M4P (Protected AAC)
Portable players supported Apple iPod
DRM technologies used Fairplay
www.apple.com/itunes

THE STORES

iTunes

The original Napster may have popularised the idea of online music, but iTunes was the first service to offer tracks commercially, and it's still the leading player in terms of volume of sales. The shop works through an iTunes app rather than the web. iTunes was previously an Apple Mac music player similar to MusicMatch Jukebox. There wasn't a Windows version for a while, but the latest 4.7.1 runs on Windows 2000 or XP as well as Mac OS X. On Windows, it's a sizeable 21MB download, as the latest QuickTime software is included. The Mac version is only 11MB, although the latest QuickTime is still required for certain functionality. There's no version for previous iterations of either operating system.



Like the Napster app, iTunes is a full jukebox, with the ability to import tracks in other formats, rip CDs to AAC, and burn music collections to CD. It has a built-in graphic equaliser, playlist repeat and shuffle modes, plus the obligatory wacky visualisations. Uniquely, it can also share your music collection over a network – even between Macs and PCs. With over 800,000 tunes now available in the UK, iTunes offers

a lot of choice, although it's not the cheapest online music vendor out there at 79p a track or £7.99 for an album. Also, if you want to listen to iTunes on the move, you'll need to buy yourself an iPod, as nothing else supports Apple's FairPlay DRM schema or M4P files. But seeing as the iPod is everyone's Most Wanted portable player, this is potentially more a feature than a drawback.

THE STORES

MSN Music Club

MSN Music Club

Price 69p per track, £6.99 per album, 1p for single play
Tunes available 400,000
File formats WMA
Portable players supported Most Windows Media compatible devices – see www.microsoft.com/windows/windowsmedia/mp10/devicesupport.aspx for more details
DRM technologies used Windows Media 10
www.msn.co.uk/musicclub

You'd probably expect Microsoft's music shop to have positioned itself to dominate the market, just like pretty much everything else that Bill Gates puts his hand to. But although it's true that Microsoft dominates the online music DRM world outside of iTunes, its own store is a bit of a lacklustre me-too affair. Surprisingly, Microsoft has chosen to partner with a third-party company rather than go it alone. So MSN Music uses Loudeye's On Demand Distribution (OD2) infrastructure, just like MyCokeMusic and numerous others.

This means that MSN only has 400,000 tracks on offer – significantly less than Napster or iTunes with one million and 800,000 respectively. But on the upside, it is cheap, costing just 69p a track or £6.99 an album. Plus, if you haven't heard enough from the 30-second preview, you can also play selected tracks in their entirety for just 1p a go, which might work out a hell of a lot cheaper than Napster's £9.95 subscription if you play less than a thousand songs a month. The MSN service itself can be accessed via a web page, but it's also integrated into Windows Media Player 10 so you access it offline.



So ultimately although MSN doesn't have all the music you can find on either Napster or iTunes, it does have value on its side – and if you're into music in any way, it could certainly reduce your outgoings substantially. It's certainly well worth looking here first to check if it stocks what you're after – unless you object to lining Gates' pockets even further... or you're an iPod owner.

MSN only has 400,000 tracks on offer – much less than Napster or iTunes

THE STORES

Everyone else

A number of other sites apart from MSN now use the OD2 engine, and their content and pricing are remarkably similar. MyCokeMusic.com, Virgin, Wanadoo, Tiscali and HMV all operate via OD2. Tesco also launched a service in November last year, but in partnership with the German 24/7 Music Shop. Choosing between any of these stores is really a matter of seeing which ones have the music you want for the least money – and you might find the same tracks for the same price from multiple vendors. All of them use WMA, usually encoded at 192Kbps or above, allied with the Windows Media 10 DRM schema. So they're all aimed at PC users.

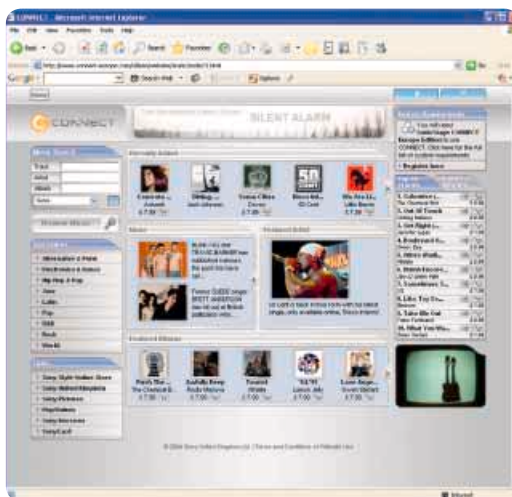
There are a few maverick shops which have gone in a different direction. We've already mentioned Sony's Connect, which sells songs in ATRAC format and requires Sony's SonicStage CONNECT Europe Edition software to function. With tracks ranging from 99p to £1.09 each, it's not cheap, and you're confined to Sony's own portable music players. Not surprisingly, the service hasn't challenged iTunes and Napster greatly so far.

If you want to avoid the restrictions of DRM altogether, there are a few sites which sell MP3s free to copy and burn at will. In the UK, Wippit offers 350,000 tracks, although not all of them are available as MP3 – some are WMA and require a Wippit registration to play. Tracks are sold individually or can



be downloaded from a 60,000-strong selection as part of a £50 annual subscription. Emusic.com just sells MP3s, however. It's exclusively available via subscription, which starts at \$9.99 a month for 40 downloads. There's a free trial including 50 free downloads as well.

There are also numerous independent labels selling online, the best known of which is Bleep.com. This amalgamates a number of independents, such as Ninja Tune, under one roof. In fact, there are now so many vendors out there, if you can't find the music you want in the mainstream shops, we'd recommend trying a search engine such as Google. The web is awash with music.



The ins and outs of DRM

Digital copying has put the fear of God into record companies. Whereas each successive analogue copy of music loses quality each time that it's recorded, digital copies are always identical. So the owners of music content wanted some form of control over digital copying before they'd let their tracks be sold online. That control came in the form of Digital Rights Management (DRM). Using a combination of encrypted files, licence certificates and media player applications able to put the two together, DRM imposes limitations on what can be done with digital media files that you purchase over the internet.

When you buy music from an online music store, be it in Windows Media Audio or Apple's Protected AAC format, you receive an encrypted music file and a certificate. Every time

you play the file, your media player software will check the certificate, and if it's valid will allow you to play it. Different certificates will give you different rights. For example, if you download a track from Napster as part of the subscription service, you're given the right to play it on up to three different PCs – but not burn it to CD or copy it to a portable, unless you subscribe to Napster To Go. Once you've bought the track, you're given burning and copying rights. You're still not given complete control, though.

Software without the DRM capability built in won't be able to decrypt the file at all, so won't be able to play it or burn it to audio CD – even if you've purchased it. You'll be able to copy the file to a different location, but without the licence certificate it's effectively useless.

How to get the most from online music stores



Q&A

WHAT'S THE BEST FORMAT TO USE FOR A DIGITAL MUSIC COLLECTION?

Music is best kept in its original format – so if it's from CDs, then 44KHz, 16-bit WAVs will be the optimum, and downloaded tracks should be left in the file type they came in. However, if you're transferring your CDs to your PC, WAVs require a lot of space. So use a format that's compatible with your portable player. MP3s are the most compatible, but WMAs (for Windows Media portables) or M4Ps (for iPods) offer better quality at a given data rate.

HOW PORTABLE IS ONLINE MUSIC? CAN I TRANSFER IT TO MY PORTABLE PLAYER?

Music you've purchased online can be easily transferred to a compatible portable player. However, WMAs won't work on iPods, and iTunes' M4Ps will only work on iPods. Music that's been downloaded using a Napster To Go subscription service may also be transferred to a few compatible devices (see www.napster.co.uk/compatible_devices/index.html for more details).

DO I OWN THE MUSIC I BUY?

No – you never own the music you buy, even on CD. All you have purchased is a particular copy of the music and the right to listen to it. You may also have certain limited rights to copy it for personal use, but you certainly don't have all the rights that full ownership would imply.

IS THERE A SEARCH ENGINE THAT ENCOMPASSES ONLINE MUSIC?

There's no overall search engine which amalgamates all the different music stores. Most of them have extremely good search facilities built in, however, so if you can't find a track on your favourite service, you can always try searching a few others for it.

IS MUSIC PIRACY REALLY KILLING OFF THE RECORD INDUSTRY?

CD sales in the US did drop five per cent in 2002 and seven per cent in 2003, but they rose again by 2.3 per cent in 2004. In the UK, CD sales were up by three per cent in 2004. Considering the ever-increasing penetration of broadband and access to peer-to-peer networks, the recovery in the market rather negates the recording industry's claims that it's being killed by piracy. Perhaps it was just the recession after all.

NEXT MONTH

How to set up a multi-room audio system

How to understand DVD formats

DVD recording is simple in theory but the differences between formats can be baffling. Understand them all with our beginner's guide

DIFFICULTY EASY **TIMESCALE** N/A **COST** FROM £0.20



Video recording used to be simple. You bought a blank tape, and that was it. At the birth of VHS there was a format tussle with Sony's Betamax, plus minor players such as Video 2000. However, aside from camcorder variations, S-VHS and professional broadcasting gear, videotape was easy to grasp – even if the quality varied and rewinding was a pain.

As a playback medium DVD-Video is straightforward too. Recording arrived later in DVD's evolution, with the first domestic recorder appearing in 1999, about three years after the first players. Because the underlying disc format was well established, manufacturers faced a conundrum. The first option was to make recordings compatible with existing 'legacy' players but that wouldn't enable clever editing features that engineers had developed in the meantime. The other option was to provide extensive editing but at the expense of compatibility in legacy players. Of course, various hardware manufacturers backed different DVD recording options rather than settling on one.

Consequently, the recordable DVD landscape is much like the audio recording sector, where there's a

range of media offering different capacities, qualities and compatibilities. In the case of one DVD media type, DVD-RW, it's possible to format the same disc in one of two ways. One offers more editing while the other restricts this in return for widespread playability in other machines. Therefore you don't have to make this choice when you buy the hardware or blanks, but you must decide when recording to disc.

It's no surprise that standalone DVD recorders are gradually giving way to combi recorders that include a hard disk drive (HDD). This means you can record to HDD first, make any necessary edits and decide what disc type to burn it to later. The other common rewritable format is DVD+RW, which offers basic editing options and is broadly compatible with other players.

The best discs for compatibility are the write-once kind, known as DVD-R and DVD+R. These are cheaper than rewritable media but you can't reuse them.

They are, however, ideal for archiving and are recommended for use in DVD-HDD combis so you can get everything right before transferring to disc (often at high speed). For the cheapest deals, we suggest you buy online and in bulk – DVD-Rs can be found for as

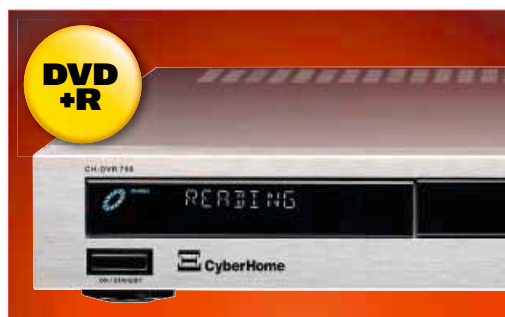
The most sophisticated medium is DVD-RAM but its popularity is limited by its incompatibility

little as 20p per unit. See retailers such as www.bigpockets.co.uk or www.rivieramultimedia.co.uk.

The most sophisticated medium is DVD-RAM but its popularity is limited by its incompatibility in other players and many PCs. At best it behaves like a thin hard drive, providing simultaneous playback and recording in some machines, but the discs are pricey.

The capacity of all basic blank DVDs is limited to 4.7GB, though DVD-RAMs can be double sided. The total running time depends on the recorder but the

STEP BY STEP Which DVD format?



1 DVD+R The write-once version of DVD+RW, invented by Philips and widely used in the industry, especially in budget DVD recorders. It's inexpensive and easily read by DVD players, which means that compatibility is very high, so this is an ideal archiving medium. Discs must be finalised before playback in other machines. Dual layer DVD+R blank discs are now available in the shops, but not all recorders and drives will write to them.
www.dvdrw.com

DVD player compatibility ★★★★★★



2 DVD+RW The rewritable version of DVD+R. Discs can be partially or fully erased if you want to copy something else on to them. DVD+RWs don't have to be finalised for playback elsewhere, although changes such as hiding chapters must be updated in the disc's index (this feature is usually called 'make edits compatible'). Recordings are linear, like tape, so various erased segments cannot be combined for continuous new recordings.
www.dvdrw.com

DVD player compatibility ★★★★★★



3 DVD-R The popular write-once format used which is in a large number of PC drives and DVD-RAM or DVD-RW format recorders. Its cost and compatibility benefits are similar to DVD+R – which means the discs can be played back in most machines – and discs must be finalised before playing back in another machine. Dual layer DVD-R blanks are also available, though like DVD+R DL, suitable recording hardware may be in short supply.
www.dvdforum.org

DVD player compatibility ★★★★★★

GLOSSARY

Blu-ray A next-generation, high definition DVD playback and recording format that has been developed and backed by a number of consumer electronics manufacturers and is supported by some Hollywood studios.

Dual layer Doubles the capacity of one side of a DVD-R or DVD+R; requires a compatible recorder.

Finalising A process that must be done at the end of recording to 'seal' the disc and enable it to be played in other machines. DVD-RW discs can be usually be unfinalised for later changes.

Hard disk drive (HDD) Self-contained, non-removable memory as used in PCs but which is increasingly common in digital video recorders as a useful temporary archive and to make edits and compilations in DVD combis.

H.264 An advanced MPEG video compression system with twice the efficiency of traditional MPEG-2 as used by DVD and digital TV. It can provide both high quality and high capacity recordings. HD recorders, among other new products, are likely to feature this.

HD-DVD The next-generation, high definition DVD playback and recording format. Despite endorsement by various Hollywood studios and the industry's DVD Forum, it will still be competing in the market with Blu-ray, above.

Multiformat recording R/RW combinations are normal but some recorders are Multi drives in that they include another major DVD recording format.

Non-linear editing DVD-RAM and DVD-RW (in VR mode) enable you to make changes to the running order of the disc and erase and reuse various parts without leaving 'gaps'.

Simultaneous play and record An advanced feature of some recorders where you can play any title on the disc even if it is being used for a current recording. This is inherent to DVD-RAM and also found on some DVD-RW decks (providing the blank disc type offers at least x2 speed).

Windows Media Video HD An alternative method for getting high definition quality recordings. More effective than DVD's traditional MPEG-2, two hours of WMV-HD content can be stored on 4.7GB DVDs.

Video mode The standard video recording format used by DVD-R and DVD-RW, which ensures widespread compatibility (if not re-editability) in other players.

VR mode The advanced video recording format used by DVD-RW, which allows for non-linear editing and simultaneous play and record, among other sophisticated features.



common maximum is six hours or eight hours. Some recorders are better with longer running times but it's best to keep within three hours per disc.

A new development is dual layer (DL) blank disc technology, which doubles the capacity of DVD+R and DVD-R to two hours in top quality or 16 hours at most. It also brings domestic recording in line with commercial DVDs, most of which are dual-layered. There are no dual-layer RW discs. While dual-layer recordings should play in most players and PCs, machines to record on DL blanks are rare.

However, multiformat machines are increasingly available, either as PC drives or standalone items. Multi-format burners and recorders can write to three or four of the usual disc types, often DVD-R, DVD-RW and DVD-RAM. There is no absolute do-it-all device and many manufacturers only support two formats, such as DVD+R/+RW with DVD-R.

The next stage is high definition DVD, which propels

DVD to HDTV quality by using lasers in the blue-violet part of the spectrum instead of the traditional red. With advanced compression, such as H.264 (MPEG-4) or Microsoft's WMV-HD/VC1 (www.wmvhd.com), higher resolutions can be crammed on to ordinary media, but it's not ideal.

Unhelpfully, there are competing systems for HD video discs, which means another format war. But both Blu-ray disc and HD-DVD are offering maximum capacities of at least 15GB. See www.blu-ray.com and www.dvdforum.org for more. Like standard DVD, pre-recorded HD movie and TV titles will be available to buy, while blank discs will be able to store vast amounts of PC data and standard TV recordings.

If you're still deciding on a recorder, check our breakdown of each format. For

DVD+RW, Philips' machines tend to offer the most features, but Sony's dual-RW RDR-GX700 is nicer to use. For DVD-RAM, Panasonic's DMR-E65 is unbeatable. Recommended DVD-RW recorders include JVC's DR-M10 and Pioneer's DVR-220S.

Expert tip

It seems obvious, but by paying that little bit more for a multi-format DVD recorder, you will ensure that you have maximum flexibility and compatibility.



4 DVD-RW The rewritable version of DVD-R and the most high profile reusable format supported by the DVD industry body. Discs can be formatted in Video mode for good compatibility or VR mode for non-linear editing after recording (only players marked 'RW compatible' may play VR discs). Simultaneous play and record is supported by some machines, but you must use x2-speed discs for this. Discs must be finalised for playback and you cannot swap between Video or VR modes without erasing contents.

DVD player compatibility ★★★★★



5 DVD-RAM DVD-RAM is also supported by the DVD Forum but much less commonly used. With DVD-RAM, advanced non-linear editing and simultaneous play and record are generally offered as standard. RAM discs can be double-sided but tend to be more expensive and sensitive to damage. It's therefore a good idea to use discs with a protective cartridge – however, be warned that some machines require you to remove this. Compatibility in other players is relatively rare.

DVD player compatibility ★★★★★

NEXT MONTH

How to get the most from your EPG

How to get more from your Media Center PC

Tweak your Start page, add new programs and make sure you never miss a programme recording

DIFFICULTY BASIC **TIMESCALE** 5 MINUTES **COST** NONE

Just when everyone had become used to the idea of the PC as an office workhorse and games machine, Microsoft offered an entirely new vision, the impact of which is still being felt. Suddenly, the PC didn't have to be an enormous towering unit squatting – and hidden – underneath your study desk: it could be a sleek device you kept on display in your living room, you viewed through your TV, and you controlled with an infrared remote.

Media Center Edition is a version of Windows XP that's available only when you buy a new computer designated as a Media Center PC. Based around Windows Media Player, Media Center Edition presents simple menus and controls that are designed to be read at a distance and operated by a remote. You can

enjoy leisurely access to the music, video and photos that are stored on your PC's hard disk. Even better, you can plug in a TV aerial or digital set-top box, and then use your Media Center PC to record programmes on the same hard disk – just like a PVR.

With Portable Media Center and Media Extender devices enhancing the basic set-up, the Media Center PC is quickly evolving into the most flexible way to enjoy all digital media. And our tips will help you move beyond the basics to become a Media Center master.



TEN EXPERT TIPS

1 Media Center Edition 2005 can automatically check your monitor or TV, then configure itself to present the best picture. Access the option via Settings, Television, Configure Your TV Or Monitor.

2 Media Center stores video in its own DVR-MS format and, like MPEG-2 on which it's based, it's not particularly storage-friendly. Cut down the size of your recorded programmes by slicing out the adverts. Use DVRedit, available from www.thegreenbutton.com/downloads.aspx.

3 Various extra widgets are available for Media Center systems. Swing by www.mediacentrware.com where you'll find trivia games, Calendar, To Do List and Contacts applications.

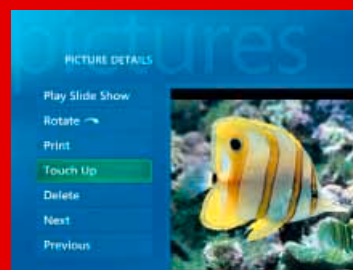
4 Media Center Edition 2005 can automatically record programmes starring a favourite actor or covering a given theme, based on keywords you enter via My TV, Recorded TV, Add Recording, Keyword.

5 If you're worried about missing the end of a recording due to Media Center starting to record another programme, use the Start When Possible option found via Settings, TV, Recorder, Recording Defaults. Start When Possible records a programme early to ensure you don't miss anything.

6 Decide which of your chosen series recordings should take priority over another by following the instructions via My TV, Recorded TV, Scheduled, Series, Change Priorities.

HIDDEN GEM If you're having problems watching recordings, or with synchronising recordings to a Portable Media Center, the fault may lie with your MPEG-2 video decoder. Microsoft's Windows XP Video Decoder Checkup Utility checks your PC for decoders and reports on the best option. It's available from www.microsoft.com

7 Choose a Media Center PC model with a digital TV tuner only if you plan to receive Freeview. If you plan to take your Sky Digital set-top box through your Media Center PC, you should choose a model with an analogue TV tuner.



8 You can adjust photos within Media Center Edition 2005 just as you would at a developing booth or on your PC – simple things like rotating,

cropping or removing red-eye, for example – but the option is hard to find in among all the menus. You can find it by going to In My Pictures, selecting a picture and then pressing the More Info button. After that, select Picture Details from the menu.

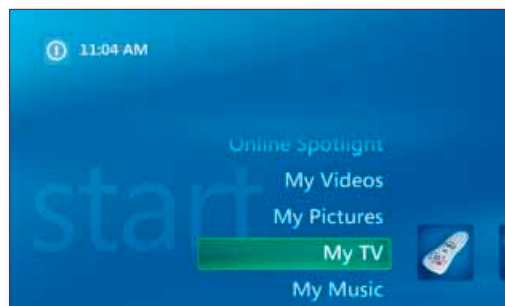
9 You can use your Media Center remote to play *Solitaire*, supplied free with Windows XP. Use Left and Right on your remote to move to a card and press OK to select it. Use Up and Down to select a pile of cards on any stack. Use Left and Right to move between card stacks on different rows.



10 Media Center PCs can also access digital content stored on networked PCs or NAS devices. For example, to add extra music folders, press the More Info button on the remote when in the My Music option. Then simply follow the onscreen instructions.

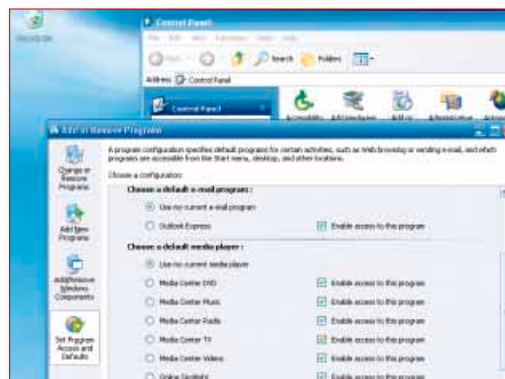
STEP BY STEP Customise your Media Center Start page

Save on remote button presses or add new programs to the menu



1 IN THE BEGINNING

Simple and attractive, Media Center's Start page presents basic options such as My TV and My Pictures, as well as providing access to settings. With a little knowledge, you can customise the options that appear in the Start page's menu.



2 BASIC OPTIONS

To change basic options, go to Windows Explorer's Start menu and select Control Panel, then open Add Or Remove Programs. Click on Set Program Access and Defaults and choose Custom, then tick "Enable access to this program" and any options you want shown in Media Center.



3 PROGRAM CHOICES

You can add your own program choices, too. Let's add *Solitaire*. Start by opening a My Computer window, then navigate to your PC's Start Menu\Programs\Accessories\Media Center\Media Center Programs folder.

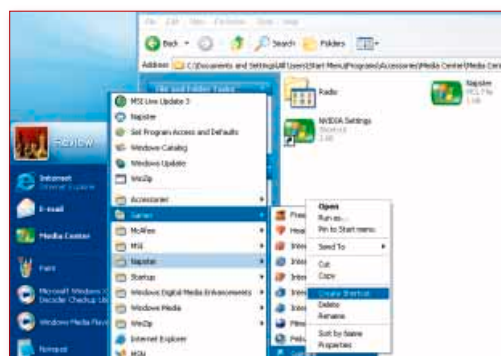
JARGON BUSTER

Media Center Extender If you can't connect your Media Center PC directly to your TV, either because of distance or lack of connections, you will be able to buy a Media Center Extender that plugs into your TV and communicates wirelessly with your Media Center PC.

MPEG-2 One of the most common technologies used to process a movie or video clip so it can be stored in digital form. DVD players use MPEG-2, while Media Center Edition uses the MPEG-2-based DVR-MS format to store its programming.

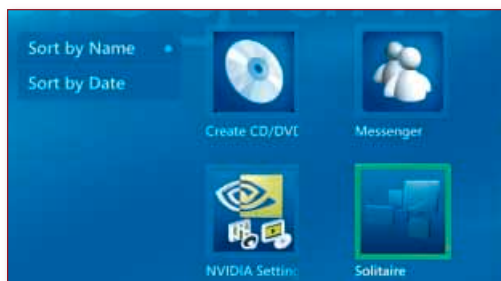
Portable Media Center A compact device able to synchronise with your Media Center PC, enabling you to take recorded TV programmes or music on the road to watch at your leisure.

RSS Really Simple Syndication is an alternative way to present information in web pages. RSS readers such as NewsGator can access RSS feeds then compile them so you can quickly see dozens of stories from all your favourite websites, without visiting each in turn in your web browser.



4 SIMPLE GAMES

Find *Solitaire* in the Start menu's Games folder, then right-click on it and choose Create Shortcut from the menu that appears. Drag the new shortcut from the Start menu into the Media Center Programs window, where you can rename it if you like.



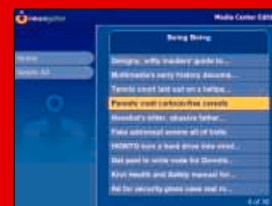
5 OPENING GAMES IN MEDIA CENTER

Now open Media Center and navigate to the More Programs option, where you can use the new Solitaire icon to run the game within Media Center. See our Expert Tips to find out how you can play Solitaire using your remote.

How to get more from your Media Center PC

Downloads

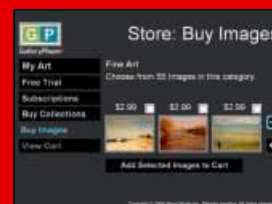
Visit Media Center's Online Spotlight area to download these five superb enhancements



NewsGator

Syndicated newsfeeds delivered via RSS are a convenient way to scan dozens of websites for new stories. NewsGator Media Center Edition enables you to view stories via your remote, while synchronising subscriptions and stories with NewsGator options on other devices.

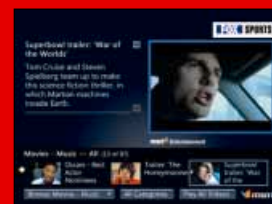
Free; extras from \$5.95 pcm www.newsgator.com



GalleryPlayer

If you run your Media Center PC through a plasma or LCD display on your wall, you'll particularly appreciate this program, which gives you access to the cream of fine art and enables you to present work from Cézanne, Warhol and others as digital paintings. You can buy any work to build a collection or take out a subscription.

Free; single images from \$2.99 www.galleryplayer.com



MSNTV Today

Enjoy video clips on demand with Microsoft's streaming service. Topics include entertainment, technology and sports, and there's also up-to-date news reporting. You can add MSNTV Today to your More Programs selection to access it any time you like.

Free www.msntv.com



Napster

The popular online music download store is available through Media Center as well as the program you use in Windows. If you're already a member, you can enter your existing account, then use your remote to choose songs to play or purchase.

Free; songs from 79p www.napster.com



Live365

Your Media Center PC already enables you to enjoy radio, but Live365 grows that choice with thousands of stations, all delivered as streams via the internet. Use

your remote to browse station listings.

Free; optional services from \$3.65 per month www.live365.com

NEXT MONTH

How to get more from your wireless network

How to get started with VoIP

Why pay a fortune just to chat to friends and family, when you can do it for free using nothing but your computer?

DIFFICULTY EASY **TIMESCALE** 1HR **COST** FREE

Here's the pitch: Free phonecalls. Not convinced? Not surprising. VoIP – that's 'Voice over IP' – is one of those technologies that has never really taken off over the years. Despite endless programs capable of turning PCs around the world into the most expensive walkie-talkies ever built, with almost every instant messaging client offering the ability to start conversations rather than simply wing around messages, there's always been something to get in the way. Early on, it was bandwidth. Later, interoperability. And whichever you opted for, the impossibility of getting through to actual landlines was always a deal breaker. Modern VoIP systems are finally getting it right. No technical knowledge is necessary, with a broadband connection hooking you up to anyone.

Skype is by far the biggest name. Written by the original authors of file-sharing tool Kazaa (and entirely free of adware and other unpleasant surprises), it finally makes VoIP work as promised. All conversations between computers are completely free. Skype uses exactly the same buddy list system as every other IM client, with the ability to send text messages and files as well as start audio conversations. You can see who's online, proposing a connection with a couple of clicks. Your friend's Skype client will start ringing, giving them a choice of accepting the call when they see who it is, or turning it down. It's incredibly easy to get to grips with.

Skype's most interesting feature, however, is SkypeOut, which enables you to make internet based phonecalls to landlines and mobiles. This does cost money, but nowhere near as much as calling far-flung lands from your landline. Rather than paying a monthly bill, you simply stock up on credit at the main Skype website, and use it until it runs out. Slowly, we're starting to see companies go slightly beyond this, providing conventional handsets rather than asking you to use headsets or a microphone/headphone combination, along with the ability to punch numbers into the handset and have Skype make the call directly – but in most cases, you simply won't need this for home use. Skype does an excellent job of correcting for echos and other problems, and the most basic make of microphone should be enough to get started.

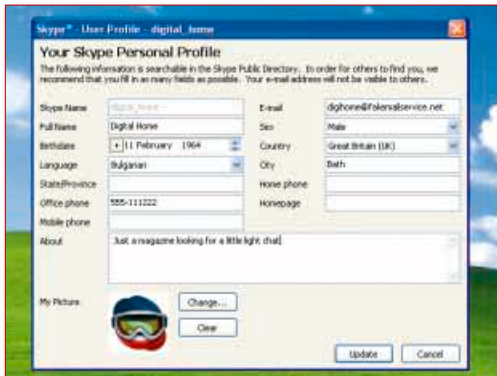
STEP BY STEP Setting up a Skype VoIP service

Before you can make free calls, you'll need a Skype account...



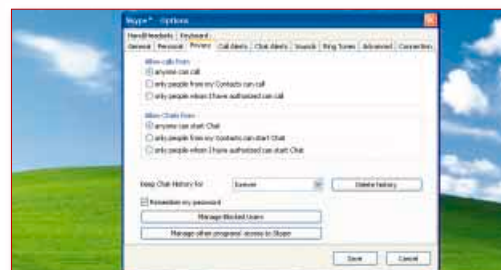
1 TOOLS OF THE TRADE

First of all, you'll need to get hold of Skype. It's a free download from www.skype.com, and available for Windows, Mac OS X and Linux systems. The Mac one can talk to the Linux one as easily as the Linux one talks to Windows, although the look and feel does vary slightly between platforms. Run the setup program to install it, and choose automatic or manual startup for your Skype client.



2 IDENTIFYING YOURSELF ONLINE

Now it's time to create an address. You don't need to give any personal details for this, but remember that the username you choose will be the one that you'll be handing out to anyone who wants to get in touch with you. Next, you'll either need to persuade a friend to set up an account, or dig up their Skype username to say hello.



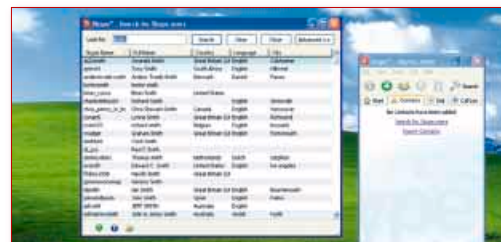
3 AVOIDING VOIP SPAM

Let's nip this one in the bud right away. Select Options from the File menu and click on the 'Privacy' tab. 'Calls' are voice conversations – chances are that you'll want to restrict these to people you've specifically given permission to contact you. 'Chats' are text-based, instant messaging sessions.



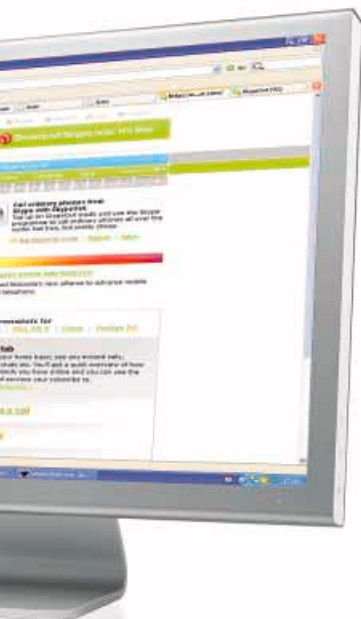
4 PREPARE THE HARDWARE

Next, spend some time experimenting with your equipment. Skype's noise reduction software means that you shouldn't have any trouble having a conversation even if you've got music playing in the background. Ideally, you'll either have a headset, or a decent quality microphone.



5 NO FRIENDS AND FAMILY DISCOUNT

The 'Add A Contact' option in Tools gives you the ability to pull information out of your Outlook address book, or type in a name by hand. Once added to your contact list, simply select them to begin dialing, and get ready to talk.



STEP BY STEP More advanced features

VoIP services like Skype offer more than computer-computer calling. Consider the following...



1 SKYPE AS INSTANT MESSENGER Skype has all the features you'd expect to find in a dedicated IM tool, including the ability to start text chats, send files, and look up profile information on your contacts. All of these tools can be accessed by right-clicking on a contact's name to bring down the options list. You can use the same menu to block incoming messages from people you don't want to talk to, or create a SpeedDial for anyone you want to get hold of immediately.



2 SKYPE OUT To make landline calls on Skype, you'll need to buy credit. A few things to watch out for here: while the 10 Euros (around £6) claims to give you around 10 hours worth of chat, call costs differ from place to place. In addition, you can't use Skype to contact the emergency services. Most importantly, if you don't use the service for 180 days, any credit on the system will be lost – only buy what you need.

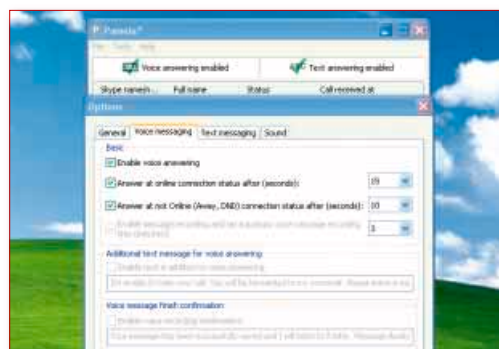
FAQs

WHAT ARE THE LIMITATIONS OF THE SKYPE SERVICE? The biggest limitations are that you can only receive calls if online (there is no official answering machine in Skypeland yet), and people cannot phone you from landlines. Both of these are manageable. Two separate answerphone extensions are available, called SAM and Pamela, while Skypeln is due to make it as easy to dial in as it is to dial out.

IS THE CALL QUALITY REALLY AS GOOD AS THEY SAY? For the most part, yes. You'll need a broadband connection to chat properly, and there will undoubtedly be the odd click or quiet patch should there be a hiccup, but aside from this, Skype is just like speaking to someone over the telephone. Skype uses P2P technology to route calls and access other information that it needs, working out a path based on the best route at the time rather than filtering everything through a central point of failure. It's a pretty stable platform.

In addition, should you have any difficulty with the voice conversation, you can always switch to the low-bandwidth, text-based IM mode until your connection improves. Skype can't access MSN, AIM, Y! or other networks, but it will handle these basic functions well enough.

CAN MY TELEPHONE CALLS BE HACKED? Well, never say never – but it's unlikely. Everything you say is encrypted before its trip through the internet, only converted back into speech on the other end. This is certainly more secure than, for example, e-mail – which spends its life whizzing around the internet unencrypted, and passing through umpteen different servers on its way to your destination.



3 I CAN'T TAKE YOUR CALL RIGHT NOW... You're not restricted to Skype's built in tools. Head for www.freewebs.com/skypeansweringmachine to download SAM, or www.pamela-systems.com for Pamela. Pamela records messages up to three minutes long, presenting them in a list (complete with the caller's identity and any other info). In both cases, you can provide your own greeting by pointing the software at a WAV file.

The VoIP Landscape

Skype is the most popular VoIP system around at the moment, but by no means the only one. This is both good, and very, very bad. Nobody wants a world ruled by one closed-standard, which Skype definitely is, as it restricts you to one company's every little whim. Already people have complained about parts of the license that appear to give the company the right to bolt on other features in the future – principally features like a forthcoming voicemail service and Skypeln, but with traditionally loose wording that could theoretically see it taking the Kazaa route of bundled adware in the future. That's not a problem, unless you've become reliant on it for all your telephonic communication...

The trouble is that every company wants to be the one standard that makes it. Instant Messaging tools demonstrate the problem perfectly: AIM can't talk to Yahoo!, Yahoo! refuses to talk to MSN and MSN denies all knowledge of ICQ. When the corporates smell blood, interoperability becomes a very distant concept. Ideally, everyone would settle on one of the open standards available, turning the fight away from sheer numbers and moving onto straight features and usability.

As it is, whole groups have to adopt the same platform just to talk. You probably have the ability to do so already, in any event. MSN, AIM and all the other major networks have had voice and full video conferencing features built in, with applications like TeamSpeak and Roger Wilco providing chat for gamers in everything from Counterstrike to Counterstrike. Well, in our experience at least. A few other VoIP contenders include Net2Phone (www.net2phone.com), PhoneGAIM (www.phonegaim.com), BT's own Communicator (www.bt.com/communicator) and Glophone (www.glophone.com), all offering slightly different takes on the market, from virtual phone numbers to built in answering machines.

Importantly, VoIP isn't restricted to computer-to-computer calls. Many businesses are implementing their own systems, mixing internal systems to use VoIP internally, but seamlessly switching to conventional phonelines when dialling out, for the best of both worlds. At least, the best for now. Unsurprisingly, the world's telcos haven't glossed over what the technology can do, and are currently idling away their time either wetting themselves at the thought of everyone getting free calls (the FCC is currently investigating several US companies after rumours emerged that they might be intentionally tracking down and degrading voice traffic on their networks) and trying to hook into the possibilities themselves. Naughty.

Over here, BT has already announced a major push towards VoIP for standard phonelines. Rather than actually replacing your phone, or plugging a PC into every socket, you'll make your calls exactly as you do now – only the mode of delivery really changes. Of course, the odds of this leading to free worldwide calls are approximately zero to none, but the Internet based nature of the technology has plenty of potential to lead to savings for the rest of us over time. But whether we'll actually get to see them is a different matter. For now, get on and try it for yourself.



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RGB to S-Video converter

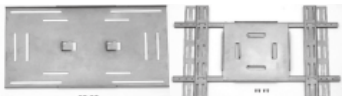
RGB is a great format in which to send video, with picture resolution as good as S- and much better than composite video. But not everything can accept an RGB signal. Problem solved! This box converts the RGB scart output of Sky Digital/ITV Digital boxes, and DVD players, into S-video. Ideal for making high resolution connections to AV amps, S-VHS/D-VHS recorders and plasma screens. NTSC and PAL compatible. [RGB2S] **£59.99**



Flat screen wall mounts

Left: Tilting wall mount for LCD/TFT displays up to 21" / 14kg [BT7511] **£24.99** Non-tilt version [BT7510] **£19.99**

Right: Universal wall mounts (include fitting kits not shown) for plasma screens up to 70kg. [BT8000] for solid walls, [BT8001] for stud walls **£79.99**



See www.keene.co.uk for many more options including mounts for large LCDs

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How well set up is your home cinema? How low does your subwoofer go? Find out for sure, with the accuracy you need, using this digital sound level meter. Great value, it features built in mic, 7 selectable frequency ranges, weighting selector, adjustable sensitivity from 50 to 126dB, FAST & SLOW response settings, tripod adaptor for stand mounting, and more. Phono output for connection to external equipment. 21-bar graphical display. Power: PP3 type 9V battery (not included). [SLM2055] **£39.99**



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HSR1000 SCART SWITCHBOX

An advanced scart switchbox with some interesting features, the HSR1000 is effectively a Home Cinema friendly 7x3 Matrix switcher. There are seven inputs in total (six scart plus front AV), any of which can be independently routed to one of four outputs (three AV, one audio only). Four of the input scarts support RGB, one is composite only and one is composite or s-video. Also supports digital audio (SPDIF) on three of the inputs. Switching is auto or manual (via the front panel or with the IR remote incl). All in all, pretty amazing! **Now shipping Mk2 version with widescreen support.** [HSR1000] **£89.00**



UK standard delivery (Royal Mail 2nd Class post) £2.50 per order. 1st Class post £4.50 per order, next working day delivery £8.00 per order (UK mainland only, remote areas may take longer / cost more). Overseas and export deliveries by airmail charged at cost.

new APTUS converters

Video standards converters designed to be easy to connect and operate – just plug in and use – yet built to the usual Keene high standards.

Aptus 1 An RGB to component video converter built using the same high quality components as the RGB2C. Will convert RGBs (set top box RGB with composite sync) into component (Y Pb Pr) video. It is a simple scart plug design with 3 x RCA phono output for the component video and a 3.5mm mini-jack for audio output. [APT1] **£79.99**

NEW Aptus 2 Converts component video to RGB video. [APT2] **£89.99**



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Scart Commander 4:1 scart switchbox

A high quality AV switcher from Keene, designed to allow connection of multiple sources to one display, all via scart connections. With 4 video, 2 audio, 2 data and 2 control channels it can handle component, composite, s-, and RGB video, even digital audio (with a correctly configured cable). Input selection manual (by IR remote, included, or push button) or automatically via signal detect. Use a single Scart Commander for four inputs to one output switching, or two units in a master/slave arrangement to provide 7:1 switching. Visual LED indication of selected output. Programmable default on power up settings. Separate mains adaptor for improved mains isolation. Solid metal case for enhanced screening. *What Video* 'Best Buy' March 2003 Order [KSC] **£149.99** Twin pack (7:1 switching) [KSC2] **£249.99**



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Complete kit including colour camera (pictured) and receiver just **£79.99** [KC802A]. Other models available, please give us a call or check www.keene.co.uk



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SYNCBLASTER RGB Cables

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Ready made high spec RGB & component video cables

Scart, phono, 15 pin HD and BNC end connector options, full range of lengths. For example:

Scart/3x BNC plugs 2.0m [SBB32] **£29.99**
3x phono plugs/3x phono plugs 5.0m [SBB104] **£39.99**
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HDMI to HDMI 2.0m [HDDH2] **£29.99**
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HDMI to HDMI 5.0m [HDDH5] **£49.99**
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NEW Keene IR Commander The ultimate solution for controlling equipment by IR remote, even when the equipment is out of sight, inside cabinets or in remote locations! The IR commander builds on the proven technology of the Keene IR Distribution amplifier to provide a greatly expanded number of inputs and outputs. Use of optional expansion modules allow up control of equipment up to 50m away, providing a solution for even the most demanding and complex installations. A fully connected unit provides a maximum of 10 IR receiver inputs and 13 IR emitter outputs. The Commander can even be coupled to another unit to provide 20 x 26 if desired. Basic kit comprises Keene IR commander, 240V UK mains adaptor, and high power emitter wand [IRC] **£99.99**



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One input, five fully buffered outputs. Wide bandwidth HDTV capable. Broadcast quality high speed video buffers. Use for component, RGBs, S- or 4 x composite video plus stereo audio. One video channel may be used for digital video. [KPDA] **£99.99**



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- Provides IR feedback to the transmitter from every receiver
- Can send stunning quality images up to 300 metres
- Consists of a Transmitter (top right, top) and Master receiver (for 1:1 distribution). Additional Slave receivers may be added as required for multi-room distribution.

*Use an RGB2C or SyncBlaster Black Box to convert set top box RGB to correct format for use with CAT5BLASTER.

CAT5BLASTER: Transmitter module with power supply, master receiver module, standard IR receiver, standard IR emitter wand [C5B] **£259.99**

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CAT5BLASTER master receiver power supply (for extending range to 300m+) [KT5] **£5.99**

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PowerPC G5 processor

AirPort Extreme (aka Wi-Fi)

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DIY upgrade options

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DVI video output

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Slot-loading DVD drive

64MB graphics card

Mac software bundle

Optical audio output

Gigabit Ethernet

Wireless keyboard and mouse

Processor clock speed

FireWire 800

Price competition

Floppy disk drive

NOT

Once rated as only for designers and posers, the Mac has evolved into a thoroughly modern computer. There's now a wide range of machines to choose from

The idea that you can now buy a Mac for £340 takes some getting used to. Made by Apple, these machines have gathered a reputation for style and simplicity – but low prices have not been a selling point. Over the last few years, though, millions of people have found a taste for Apple products thanks to the company's best-selling iPod. Its success is making those who'd dismissed the Mac as overpriced or "just for creatives" – wholly irrelevant.

Step outside of the tired "Mac versus Windows PC" debate, and the appeal of the Mac is much the same as that of the iPod: once the initial allure of its good looks fades, it remains a pleasure to use. Its case and software design is unobtrusive, and the stability of its operating system, Mac OS X, is excellent.

The current Mac range is divided into seven areas, including the specialist server model the Xserve. It's important to realise that each machine is designed with a specific constituency in mind. If the model you are considering seems lacking in some way, there is almost certainly a more appropriate choice you should look at. There's enough variety to suit most people. Each model comes in a few ready-made configurations, although limited build-to-order customisation is available via the Apple Store and the nationwide network of AppleCentres.

The Mac Mini is the new kid in class that's creating headlines for its low price – just £339 for the lowest-specified

model. The price does not include a monitor, keyboard or mouse, however. Either you already own these with your previous computer or you can buy them for an extra £200 or so, which covers a flat-screen display with a DVI or VGA connection, plus USB keyboard and mouse.

The Mac Mini's specification is no-frills, as you'd expect from the price, although Apple's definition of basic is a little different from most other PC manufacturers. Even the starter model includes an Ethernet socket for home networking, and Firewire for linking to a digital camcorder. The Mac Mini's PowerPC G4 processor is now the slower of the two chips Apple uses: it's capable and generates little heat, but much faster is available. Nor do memory or storage go beyond the minimum. This makes the Mac Mini suitable for everyday tasks, such as word processing or internet access, but only for casual use for games or video editing.

The eMac is a similarly-specified model, with prices starting at £549. An all-in-one design supplying both computer and monitor, it's aimed at schools, where there is significant demand for cheap computers that are easily transportable. The eMac is little promoted outside of the education market. Now that the Mac Mini enables you to buy a computer and flat-screen display for around the same price, you can dismiss the eMac.

The iMac is Apple's everyman computer, offering a balance of price and performance that will appeal to most



WHAT YOU SHOULD GET

Price	Model	Processor	Memory	Screen	Graphics	Hard Drive	Wireless
£400	Mac Mini	G4, 1.4GHz	256MB	None	32MB ATI 9200	80GB	Optional
£550	eMac	G4, 1.25GHz	256MB	17-inch CRT	32MB ATI 9200	40GB	Optional
£7,000	iBook	G5, 1.2GHz	256MB	12-inch TFT	32MB ATI 9200	30GB	802.11g
£1,000	iMac	G5, 1.8GHz	256MB	17-inch TFT	64MB Nvidia 5200	80GB	Optional
£1,600	PowerBook	G4, 1.67GHz	512MB	15-inch TFT	64MB ATI 9700	80GB	802.11g, Bluetooth
£2,000	PowerMac G5	2x G5, 2.5GHz	512MB	None	128MB ATI 9600 XT	160GB	None

people, but in particular the affluent homeowner. It's the first of the desktop range to offer a fast PowerPC G5 processor rather than a G4, and all the other components are similarly boosted. Despite its stark appearance, the iMac is designed for easy access, making it the first desktop Mac in the range to cater for those who prefer to upgrade their own computers.

As the name suggests, the PowerMac is the power user's computer. It relies on the fastest PowerPC processors, with the more expensive models offering two processors working in tandem. The tower design allows easy access for fitting extra internal hard disks or adding PCI or AGP expansion cards. While it makes a mean games machine, the PowerMac's true constituency is the professional demanding high performance to edit video or digital images. Build-to-order options enable you to choose a high-spec graphics card capable of supporting the huge flatscreen displays Apple also offers.

Two portable models take their place alongside these desktop options. The crossover appeal of laptops is such that portable Macs now account for around half of all Mac sales. The iBook is the laptop counterpart to the iMac, providing respectable performance and features without the frills.

The PowerBook is among Apple's most drool-inducing designs, but its specification means it's not for everyone. It offers high-powered G4 processors, a PC Card expansion slot and a selection of integrated video output options, which allow

you to show up at any location and feel confident that you'll find a display to which you can link your PowerBook. Such benefits come at a cost – with prices starting at £1,049 – so be sure that you actually need the exclusive features.



Along with the standard connections, each model offers a set of software, including Mac OS X and iLife, Apple's media studio for working with music, photos and video and the foundation of the Mac's credentials as a digital hub. The Mac remains a stronger platform for creating media, with El Gato's EyeTV system the only option that compares to Microsoft's Media Center PC. The Mac's incompatibility with Windows Media files aside, there's no difference between using music and video downloads on a Mac or on a PC.

While it makes a mean games machine, the PowerMac's true constituency is the professional demanding high performance to edit video or digital images

The fact that it's a company other than Apple converting the Mac into a personal video recorder highlights a key reason why it's a great time to buy a Mac. More so today than in years, a new generation of software programmers is choosing the Mac as the place to create innovative tools. Combine this with the simplicity and style that remain the Mac's hallmarks, and you have a machine worth investing in.

Tips & tricks for Mac OS X

1. You can boost the performance of the OS with extra memory or a bigger hard disk. Ideally, a new Mac needs 512MB of RAM.

2. Update your Mac with Tiger-like apps by downloading LiveSearch 1.2.3, NewsFire (RSS), DoThisNow 2.01 and Konfabulator 1.82.

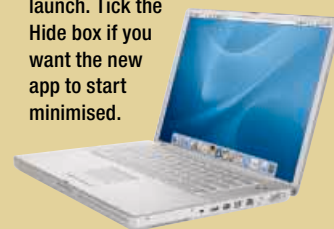
3. Recover hard disk space by deleting unused languages from applications. Control-click on an application icon, Apple's iPhoto for example, and select Show Package Contents. Open Resources and delete unwanted language files (ending in .lproj).

4. OSX features an often forgotten built-in PDF creator. Select Print from any application, then choose the Save As PDF option.

5. Add new applications to the Dock by simply dragging and dropping them to create an Alias.

6. You can switch between apps while dragging text. Select the text you want to drag, and whilst in mid-drag, press Command-Tab to change applications.

7. To make an application start automatically after booting, select System Preferences in the Apple menu, then Login. On the Login Items tab, click Add. Select the application you wish to auto-launch. Tick the Hide box if you want the new app to start minimised.



How to shop

Don't spend a penny until you've read our essential guide

Shop Around

No dealer makes a great deal of money on a Mac, so the reality is that you'll save little cash shopping around. Retail outlets include John Lewis, where a two-year guarantee is standard, Selfridges and PC World. There's also the AppleCentre network of stores. AppleCentres aren't run by Apple directly: they're independent dealers that must adhere to service standards set out by Apple to use the AppleCentre name. Most AppleCentres focus on business customers, so check whether stated prices include VAT.

There are several long-standing Mac-focused mail order dealers, where price competition is perhaps the keenest. Adverts in *Digital Home's* sister magazine

MacFormat are a good place to start. Apple also sells direct through its own mail-order operation, with internet and telephone options. Finally, there's the Apple Store in London's Regent Street. You can review your full list of options at www.apple.com/uk/buy.

Shop Safely

Only use retailers you trust or who have had good things said about them. Never respond to unsolicited emails asking you to update your credit card or banking details – and remember that just like in the real world, if an offer sounds too good to be true then it probably is. Paying by credit card also carries a guarantee for goods and services from the credit card company itself. You'll also

be pleased to hear that whether you choose to buy from UK online retailers or on the high street, you have certain statutory consumer rights that retailers have to adhere to by law in the event of a complaint.

Shop Smart

Whatever you plan to buy, it pays to do some research on what's available, what the essential features are and to try out the kit yourself before you hand over your cash. The *Digital Home* Buyer's Guide is packed with useful advice, and recommended hardware listings, based on the opinions of our reviewers. All of this should help you ask the right questions and choose the right hardware next time you decide to do some serious shopping.



BIG TVs 40 inches and above

1

Hitachi 42PD5300 Plasma

£3,000 ★★★★★
The shining star of last year's plasma screens, this 42-inch stunner is singlehandedly responsible for the recent increase in the UK's divorce rate. Sit in front of it and you'll never move from your sofa again. It's great value for performance, features and price, and the picture quality is just mind-blowing. And it's packed with digital technology to boot. Fantastic.
www.hitachidigitalmedia.com



CHECKLIST

The features you need

✓ HDTV-Ready

Make sure your TV is HDTV-ready, capable of showing 720p or 1080i pictures.

✓ Inputs

At the very, very least your TV should have component inputs, but the minimum we recommend is a digital video interconnect (DVI). Ideally, your TV will have the latest HDMI connect.

✓ Speakers

Most big screens don't come with built-in speakers, but if you will use the screen for normal TV viewing, such as watching the news, buy a TV with built-in or side-mounted speakers.

✓ Progressive

Buy a progressive scan source and video upscaler to get the best picture quality on big TVs.

✓ LCD or plasma?

LCD is fast catching up with the picture quality of the best plasma and DLP displays. Today, LCDs are the best choice for smaller CRT replacements, but if it's home cinema you want, plasma and DLP rear projection still offer the best big screen performance.

4

Philips 42PF9966 Ambilight Plasma

£4,500 ★★★★★
Philips' latest plasma blows the competition out of the water aesthetically with its gorgeous backlight. It's not a gimmick. The 'ambilight' does actually improve the perceived picture quality, which is stunningly realistic as it is. www.philips.co.uk



5

Sagem Axiom HD-D45 RP DLP

£2,000 ★★★★★
This 45-inch screen makes a wholesome alternative to plasma and LCD. There's so much contrast on tap that Peter Sissons looks like Emperor Palpatine. But you can always tone it down a bit. Reviewed page 36. www.sagem.com



6

Fujitsu PlasmaVision P42HHS30 Plasma

£4,200 ★★★★★
Simply the most breathtaking picture on the market...but a little too breathtaking. It's perfectly suited to showrooms, but once in your living room you'll soon go colour blind. At least you'll want to. More addictive that satisfying. www.fujitsu-general.co.uk



7

Sony KDE-P42XS1 Plasma

£4,300 ★★★★★
42-inch HDTV-ready widescreen plasma with DVI connect, built-in stereo speakers, integrated analogue tuner, and a wealth of picture controls. But the image picture doesn't quite match the maturity of its elders. www.sony.co.uk



8

JVC PD-42V31 Plasma

£4,000 ★★★★★
Surpassed in the last year by newer screen technologies, this is still a very fine plasma. And expect to find some good deals on the high street - it is about to be discontinued to make way for the 42B50. www.jvc.co.uk



9

Goodmans GTV42P2 Plasma

£1,500 ★★★★★
With a price like this, you would expect this to be the Brixton Darts Club of the plasma world. Not so. It's a solid rival to all the screens in the last five of our Top 10. It's got last year's tech but hey, who's going to know? www.goodmans.co.uk



10

Sagem Axiom HRD501 RP DLP

£2,800 ★★★★★
It's an HDTV screen but annoyingly DVI and HDMI are absent. We've re-evaluated our ratings criteria this month and screens that aren't ready for Sky's imminent HDTV broadcasts have been marked down, hence the Sagem now slides to 10. www.sagem.com



ON THE OFFICE DVD PLAYER



The Incredibles

The latest blockbuster from Pixar combines every cliché going yet manages to make the mix seem fresh. If our familiarity with the setting means there are few surprises, the wit of a smart script is ample compensation. The double-DVD release features a widescreen transfer, plus a great lineup of extras. Even the charming short *Boundin'* gets a making-of feature, while an all-new short shows what happened with the babysitter while the family was on its mission. Region 2 **Out now** £22.99



Arrested Development Series 1

The BBC was quick to bury this American import in the schedules, but *Arrested Development* deserves better. It's one of the cleverest sitcoms around, featuring elaborate plotting and wonderfully surreal gags. The DVD collection enables you to keep up as extended stories stretch across several episodes, while a decent set of extras offers previously unseen material. Recommended for those who like their comedy dry and on the rocks. Region 2 **Out now** £34.99



Shaolin Soccer

The recent crop of Far East film imports have taken after *Crouching Tiger, Hidden Dragon* in offering modern folk tales told with grace and awe. *Shaolin Soccer* swaps out these elements for wacky comedy, creating a fusion unlike anything else. What starts as an affable comedy becomes an epic conflict of good and evil, taking the fight scenes of *Crouching Tiger* to intentionally absurd levels. A documentary introduces you to the real practice of shaolin. Region 2 **Out now** £19.99

TVs 37 inches and under

1 Philips 32PF9986 LCD

£4,000 ★★★★★
The ultimate CRT replacement. The latest flatscreen from Philips boasts a gorgeous backlight design and highly detailed, crisp and vivid picture that makes analogue TV feeds look almost as good as high definition video. Now that's a might feat. Our only complaint is that it has no component connection and, er... that's about it. We recommend that you cancel the weekend in New York via business class and buy this telly instead. Does New York have a backlight? No, I don't think so. www.philips.co.uk



2 JVC HV-32D40 CRT

£750 ★★★★★
An attractive black frame and optional silver stand encases an extremely sharp screen. Built-in Freeview receiver and a relatively low price make this widescreen CRT a sweet deal. If you're on a budget, this is the best standard living room TV today. www.jvc.co.uk



3 Icebox Flipscreen LCD

£2,300 ★★★★★
Kitchen TVs don't get any better than the Icebox Flipscreen, which is mounted under cupboards. A truly innovative design and highly practical with internet browsing, DVD playback, and plenty of options for integration into your digital home. www.iceboxeurope.com



4 Sharp LC15L1E Aquos LCD wireless

£900 ★★★★★
The first truly portable TV, Sharp's wireless 15-inch LCD Aquos can move throughout your home and garden, receiving video signals from its wireless adapter. A step forward, but set up is awkward and battery life is around three hours. www.sharp.co.uk



5 Bang & Olufsen Beovision 6 LCD

£2,800 ★★★★★
Flawed (low luminosity, quirky on-screen menu) but thoroughly engaging (deep blacks, razor sharp pictures, excellent sound). The Beovision 6 is HDTV-ready, connects to other B&O kit for multiroom entertainment and, best of all, it's B&O. www.bang-olufsen.com



HOME CINEMA PACKAGES

1 Panasonic SC-HT37R

£999 ★★★★★
Head and shoulders above the competition for its versatility, usability and value for money, Panasonic's latest out-of-the-box home cinema bundle entered straight in to number one in our cherished Top 10 (DH, issue 20). The combination of DVD and HDD recording is a boon for movie-buffs everywhere, while the output is inspiring in every respect - picture and sound. And it's still easy to use and aesthetically discreet, though the design of the speakers is nothing special. It goes to show that all-in-one home cinema is not necessarily the compromise that it used to be. Fantastic sound out of the box and it manages it for under a grand. www.panasonic.co.uk



2 Philips MX-6000i

£500 ★★★★★
Five disc DVD changer, analogue radio tuner, and - uniquely - access to thousands of handpicked internet radio stations and digital media channels. A technological breakthrough, the MX-6000i takes home entertainment into uncharted territory. www.philips.co.uk



3 KEF KIT-100 Instant Theatre

£1,200 ★★★★★
Wins the day for simplicity of set-up: just two speakers that create a convincing virtual surround sound. It's expensive, but if you're looking for a good performing but ultra-compact virtual surround two-speaker system, look no further. www.kef.co.uk



4 Pioneer NS-DV99

£400 ★★★★★
A classy well-rounded surround package that looks and performs well above its price. Multi-format playback, compact speakers and exceptional sound output are amongst the highlights. Sadly, it lacks progressive scan. www.pioneer.co.uk



5 Sony DAV-SC8

£400 ★★★★★
Sumptuous curves and an impressive feature spec make this look like a fantastic bargain. And it is. However, the speaker quality doesn't live up to the Pioneer, and it is let down by the limited range of digital media it can handle. www.sony.co.uk



1

Hi-Grade DMS II 3400 Media Center 2005 NEW ENTRY

£1,100 ★★★★★

Our entertainment PC Top 10 gets turned upside down this month as we brought together more than a dozen new Media Center 2005 releases for the *Digital Home* Top 10 (page 61). Jumping to the top step of the podium like an Australian in more or less any track and field sport, the DMS II - the entertainment PC we've all been waiting for. They've forgotten to put in a dual digital TV tuner (must be a mistake?) and there isn't an integrated remote control receiver, but otherwise this machine has got everything. And it looks EXACTLY like a piece of serious home entertainment kit, right down to the rear-panel connections. *Reviewed page 68.* www.higrade.com



CHECKLIST

The features you need

☒ **Connections**
Entertainment PCs are intended to be the 'hubs' of the digital home, so choose a PC that has all the connections necessary to connect to the rest of your home entertainment system.

☒ **Wireless**
Choose an EPC with built-in 802.11g Wi-Fi to form the basis of your wireless home network.

☒ **HDTV**
Currently the only way to get HDTV is from recorded material on hard drive. To play HD video, your EPC should have at least a 3GHz processor and 256MB video graphics.

☒ **Freeview**
If you can receive Freeview in your area, make sure your entertainment PC has a built-in Freeview decoder and video recording software to turn it into a PVR.

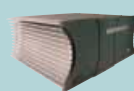
☒ **Specifications**
Make sure there's a good quality graphics card, at least 512MB RAM - preferably more - and a decent hard drive capacity (minimum 80GB for audio, 240GB for video storage).

4

Moore Innovations Medio Showshifter/WinXP NEW ENTRY

£2,000 ★★★★★

This isn't a Media Center machine (hence it's not in our Top 10 group test), but instead uses Showshifter. It even handles the latest PC games, but it weighs as much as a small passenger ferry. www.mooremedia.com



5

Mesh Media+ X4 Home Media Center 2005 NEW ENTRY

£1,300 ★★★★★

The square Shuttle case doesn't look great on the AV stack, but it's small, as quiet as a dead mouse, and stylish in its own unique gothic way. A single digital TV tuner and no Wi-Fi keeps it low in our Top 5. *Reviewed page 65.* www.meshcomputers.com



6

Hush E3-MCE Media Center 2005 NEW ENTRY

£2,300 ★★★★★

Nobody makes silent PCs quite like Hush. Top notch video and quality build... but the E3's got a solitary analogue TV tuner, no Wi-Fi and no memory card slots. This doesn't justify the price tag. *Reviewed page 65.* www.hushtechologies.net



7

HP Pavilion M1260.UK Media Center 2005 NEW ENTRY

£1,000 ★★★★★

A powerful entertainment machine, but one that still suffers from 'desktop hangover'. But the trade-off is this is still a robust, out-of-the-box desktop machine with matching screen and speakers, both equally hideous. *Reviewed page 64.* www.hp.co.uk



8

Elonex Lumina Media Center 2005

£2,250 ★★★★★

If you bought last year's zzzzzz Elonex Exentia, you're probably regretting it now. The new Lumina looks, oh just sublime. It's a gorgeous TV and a decent Media Center in one. But, um, you need two remotes to use it! *Reviewed page 64.* www.elonex.co.uk



9

Tranquil PC T2E Media Center 2005 NEW ENTRY

£910 ★★★★★

Like the Hush, this aptly-named machine exhibits little more than a whisper thanks to the passive fan-free cooling system. No one will bother nicking it - it looks like a DVD player from Asda. No Wi-Fi either. *Reviewed page 63.* www.tranquilpc.co.uk



10

Advent MC3040 Media Center 2005 NEW ENTRY

£900 ★★★★★

A solid Media Center with a distinctive design and a tempting price, but at the end of the day it's got about as much 'wow' factor as a Big Mac. A 17-inch LCD screen is part of the package, at least. *Reviewed page 63.* www.pcworld.co.uk



STREAMING VIDEO

1 Philips Streamium SL300i

£250 ★★★★★

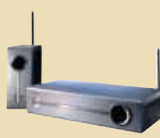
Upgrade your home entertainment system with this affordable, small, quiet, and easy-to-use 802.11b/g digital media adapter. It is capable of streaming video files from a PC, as well as other media such as audio, photos and your broadband connection. It's just a brilliant piece of digital home technology, intuitive and easy to use. Want to stream video to your bedroom? This is the solution. The more expensive and larger SL400i features a built-in LCD screen, and if you want to take an even larger step and have streaming technology integrated into your home cinema system consider the Philips Streamium MX6000i. www.philips.co.uk



2 Philips SBC VL1400

£80 ★★★★★

Philips is stealing a march in the manufacture of wireless streaming products. This device is dedicated to video sending. It also operates as an RF extender and comes with a universal remote control... and a James Bond DVD. Bargain. www.philips.co.uk



3 One For All SV1720

£80 ★★★★★

One For All's video sender allows reception from four video sources by adding extra transmitters. It too works as an RF extender, controlling up to three AV devices. It's good value for money, but not as polished as the Philips VL1400. www.oneforall.com



4 AverMedia AverSender 300

£50 ★★★★★

A little rough around the edges, but cheap as chips. Connection is via twin Scart sockets, and it only controls two AV devices through its remote extender function. Recommended for extension of a single video source; limited expansion. www.aver.com



5 Trust Wireless Televue V2

£120 ★★★★★

Versatile, easy to set-up, inexpensive and reasonable quality transmission. But when put side by side with Philips' video streaming solutions, it looks like a prototype. www.trust.com



PC ACCESSORIES

1 Best laptop Wi-Fi adapter

Netgear WAG511

£55 ★★★★★

www.netgear.co.uk

2 Best USB Wi-Fi adapter

US Robotics 54G+

£45 ★★★★★

www.usr.com

3 Best USB Bluetooth adapter

Belkin F8T003

£22 ★★★★★

www.belkin.co.uk

4 Best graphics card

GeCube ATI Radeon X700

Pro (PCI-Express)

£150 ★★★★★

www.gecube.com

5 Best network camera

Axis 205

£160 ★★★★★

www.axis.com

6 Best audio adapter

TerraTec Aureon 7.1

FireWire Audio Interface

£170 ★★★★★

www.terrtec.net

7 Best back-up device

Amacom EZ2Disk

£345 (300GB) ★★★★★

www.amacom-tech.com

8 Best Wi-Fi kit

Belkin Pre-N

£168 (router and laptop card)

★★★★★

www.belkin.com/uk

9 Best X10 network kit

Devolo HomePlug

£90 ★★★★★

www.devolo.co.uk

10 Best TV tuner card

Pinnacle Media Center 100e

£70 ★★★★★

www.pinnaclesys.com

STREAMING AUDIO

1 Creative Digital Music Player

£150 ★★★★★

The Sound Blaster Digital Music Player from Creative Labs easily grabs our number one spot by dint of being small, easy to use and flexible. Up to four devices can run on one system and the slick remote control has its own built-in LCD screen for track selection which makes all the difference - why don't more streaming devices do this? Set-up is wonderfully easy as the device automatically finds and compiles audio files when first connected to a network. Plus, it's competitively priced Easy setup + tiny form factor + brilliant remote = the best in wireless audio streaming. Unfortunately it's increasingly difficult to get hold of, so it might not be number 1 much longer. uk.europe.creative.com



2 Philips Streamium MC-i250

£300 ★★★★★

It looks like a normal micro hi-fi system, but you can also tune into internet radio stations and stream your MP3 collection throughout your home. Also consider the bigger Streamium MX6000i DVD system, which offers all this and more. www.streamium.com



3 Roku Soundbridge

£180 ★★★★★

A far better solution to streaming iTunes than the Airport Express. The quality is fantastic, and it's superbly easy to operate. Bizarrely, it won't play purchased music, even from iTunes - it's good only for subscribers. www.soundbridge.co.uk



4 Digital Audio Adapter Netgear MP101

£100 ★★★★★

An easy means of setting up multiroom audio, but the screen is a little small, internet radio requires a subscription to Rhapsody, and Mac users will have to plump for the new Airport Express and an iTunes subscription instead. www.netgear.co.uk



5 Devolo HomePlug Starter Kit

£90 ★★★★★

A 'plug-and-play' solution (literally) to streaming audio around your home that uses your mains electric cables as a data network. Several advantages over Wi-Fi, including range and usability. www.devolo.co.uk



AV RECEIVERS

1

Denon AVR-3805 £1,000 ★★★★★

A slightly bland on-screen display. That's all that we don't like about this amplifier. You get seven channels of a solid 120 Watts, processing for every significant audio format, all the connections you could ever need, and accomplished performance that's a class above every single other amp – except the Yamaha at number 2. Never before has such a splendid manufacturer graced the market for less than two grand. Behold the ultimate beating heart of the 21st century home entertainment system.

www.denon.co.uk



CHECKLIST

The features you need

✓ Connections

Buy a receiver with plenty of AV inputs and outputs, both analogue and digital, and with plenty of S-Video and component switching options. You need to be able to connect all the sources of your entertainment system to your receiver.

✓ Sound formats

The most basic surround processors use a Dolby Pro Logic decoder, but at the very least we recommend a Dolby Digital receiver, and preferably DTS also.

✓ Interface

The interface and on-screen menus should be simple and intuitive, and the manual should give plenty of guidance on configuring and optimising your system.

✓ Build quality

In few other categories of home cinema equipment does build quality reflect so intently on the quality of the performance. When buying an amplifier, check the general build quality, and check for firm connections on the back plate. And integrated amplifiers should be heavy!

4

Pioneer VSX-AX5Ai £1,200 ★★★★★

The ultimate in amplification technology, so ultimate in fact, you'll need a PhD in acoustic engineering to figure out the bloody thing. It's a thoroughly awesome device for the serious AV enthusiast, and doubles as a heart defibrillator. www.pioneer.co.uk



5

Rotel RSX-1056 £1,200 ★★★★★

Audiophiles territory more than cinemaphiles. This is an analytical and flexible observer of music, addictive to the point of intoxication in its silky smooth, rhythmic production. Five channels out only, trying to stay awwakkee...ZZZZZZ. Reviewed page 56. www.rotel.co.uk



6

Arcam AVR250 £1,000 ★★★★★

It's a little short on sheer horsepower and the remote control is almost as big as the amp. But the AVR250 is such a subtle and elegant musical performer it just might make Charlotte Church pack her bags and join the territorial army. www.arcam.co.uk



7

Marantz SR5500 £450 ★★★★★

The outright winner of the middle-price bracket, this is a good looking, feature packed, powerful amplifier. Moreover, it has more connections than spaghetti junction. A tad restrained for the likes of *Texas Chainsaw Massacre*, if that's your thing. www.marantz.co.uk



8

Onkyo TX-SR502 £250 ★★★★★

Famed for its high-end and expensive amps, Onkyo brings much of its legendary heritage to charity store clientele with this fabulously sexy, clean, loud and cheap six-channel model. Lacks digital audio outs and ultimate grunt, but it's still a bargain. www.onkyo.com



9

Cambridge Audio Azur 540R £250 ★★★★★

The Jimmy Hendrix of amps, thunderously loud and completely unsubtle. Available in silver and black, the 540R seems to be built from the leftovers of the Tyne Bridge and isn't dissimilar in the way it's bolted together either. www.cambridgeaudio.co.uk



10

NAD T773 £1,200 ★★★★★

There are more attractive Orcs than this, but this is still a mightily powerful monster. Equally accomplished with music and movies, the T773 is unfortunately as awful to use as it is to look at. www.nadelectronics.com



ON THE OFFICE PLAYLIST

No

New Order: Waiting For The Siren's Call
New Order is a reference point for many of the latest crop of bands to hit the mainstream which makes the Mancunian legends' return for their eighth album all the more timely. *Waiting for the Siren's Call* sees the group's first official line-up change, but there's little change to the sound established during the previous decade. It takes a few listens before the craft and the hooks truly sink in and tracks like 'Krafty' lodge into your brain, but they will. Label London **Out now** £9.99



Brendan Benson: The Alternative To Love
Whether it's windswept epics, pounding beats or confrontational rap, many of today's recordings bear the stamp of someone trying too hard to grab your attention. Benson's third album, on the other hand, has a lighter touch. Its carefully crafted songs, brought to life with winning harmonies and chiming guitar backdrops, seem lacking in substance on first listen. Stick with tunes like 'Feel Like Myself' and its playful warbling keyboards and you'll discover a keen intelligence underneath. Label V2 **Out now** £9.99



Basement Jaxx: The Singles
A mere three albums in might seem a little early to be delivering a career retrospective, but that's the modern music industry for you. DJs Felix Buxton and Simon Ratcliffe delight in throwing different music flavours together, often to thrilling effect. There's everything from shouty punk to irresistible samba here, with a constant rhythmic underlay. A limited-edition double-CD set includes rare B-sides. Label XL **Out now** £9.99

STEREO SPEAKERS

1

Definitive Technology Mythos One £1,800 pair ★★★★★

The thinking person's fashion accessory, these articulate, refined 48-inch tower loudspeakers have good timing, abundant detail and oodles of oomph. Okay, they're hardly traditional-looking on the exterior, in fact they look like a missing part of the Tardis. But they're still absolutely gorgeous in their own way and the good news is that, unbelievably, they sound even better than they look. Overall performance is nearly on a par with the best of them, fantastic with both film and music, yet they don't cost the Earth. Who says quality comes at a price? Wasn't us. www.definitivetech.com



2

KEF Reference Series Model 203 £3,000 pair ★★★★★

Transparent, open sound, with a particularly strong effort in the high frequency range, these loudspeakers replicate everything from woodwind to drum 'n' bass beautifully. They fully justify their 'reference' label. www.kef.co.uk



3

Ruark Talisman III £1,500 pair ★★★★★

Calling all hi-fi purists, the latest Ruark floorstanders have landed, and they're definitely eye-catching... for all the wrong reasons in our opinion. Love or hate the design, the sound is clean, precise and fulfilling. www.ruark.co.uk



4

Wilson Benesch Curve £4,900 pair ★★★★★

The new Curve loudspeakers take the best bits from Wilson Benesch's ACT series and compile them into a more affordable package. The sound field is first-class, but the Mythos Ones do just as good a job. www.wilson-benesch.com



5

Mordaunt-Short Avant 906 £350 pair ★★★★★

These floorstanders aren't the best of the bunch by a long stretch. They don't cope well with extremes, and fans of Metallica and company will feel short changed by the performance at the bottom, but check out the price! www.mordaunt-short.com



SURROUND SOUND SPEAKERS

1

Acoustic Energy Aelite 5.1 £1,850 ★★★★★

If you want speakers to look anywhere near as good as they sound, that give you a taste of real cinema dynamics while you're sitting in your living room, and send goose bumps up and down your spine with music, then this gorgeous system makes a whole lot of sense. Although we highly recommend all the setups listed below, once you've tried out this system, you'll come to the realisation that those little sub-sat speakers are really no substitute for a proper loudspeaker package. And a proper system this is, despite the very reasonable price. www.acoustic-energy.co.uk



2

Yamaha YSP-1 £800 ★★★★★

No, not a cock up by our picture department – this really is a surround sound speaker system, and a superb one at that. A sound so captivating you risk getting deep vein thrombosis. Just add subwoofer and rocking chair. www.yamaha.co.uk



3

Mordaunt-Short Genie 5.1 £800 ★★★★★

First class sub-sat system that really is a magical genie in a pint-sized bottle. It improves on the performance of KEF's KHT 2005.2 speakers and becoming the new benchmark for £800 surround. www.hello-genie.co.uk



4

Castle Acoustics Compact series 7.2 £2,100 ★★★★★

An Englishman's home is his Castle and now you can furnish it with this well-fortified homegrown system. Being 7.2 it obviously favours movies over music, but integration between speakers is excellent. www.castle.uk.com



5

Acoustic Energy Aego P5 Mk II £500 ★★★★★

AE wrestles its way into our top five a second time with the Aego system, a tantalising alternative to the Genie if a little short in the bass department. Articulate and uplifting, though a little reserved. But they are British. www.acoustic-energy.co.uk



AUDIO PLAYERS

DIGITAL
BUYER'S
GUIDE
The best
of these is
considered
nothing
else

1

Pioneer DV-868AVi Universal £950 ★★★★★

A technical tour de force in every respect, Pioneer's flagship universal player packs in the features and offers the most up-to-date connectivity through an HDMI port, two iLink ports, and all the other connections the digital home demands. There are both co-axial and digital audio ports, and sound is good no matter what flavour disc you throw at it. A combination of video processing from Faroudja, NSV and Pioneer's own display technologies gives the DV-868AVi outstanding DVD picture performance. And this outstanding universal disc play back, and all at an incredible price.
www.pioneer.co.uk



CHECKLIST

The features you need

Audio connects

Buy an audio player with digital optical or co-axial outputs, preferably both.

Surround

For surround sound audio, buy an SACD or DVD-Audio player. But don't shy away from two-channel music: many audiophiles are returning to high fidelity CD players and stereo systems.

Universal

If you want to play CDs and both SACD and DVD-Audio discs, you'll need to buy a 'universal' player. Universals can also double-up as DVD-Video players.

Writeable CDs

If you have a large digital audio library, check your CD player can take CD-R/RW discs and can play back MP3s.

External record

You'll need a digital output – either co-axial or optical – to record to MiniDisc or CD-RW.

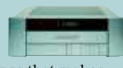
Volume control

Choose a player with 'variable output'; one that allows you to adjust the volume without having to use an amplifier.

4

Meridian 800 DVD-A £10,805 ★★★★★

If DVD-Audio is your thing, then this enormous box contains a combination of cutting edge technology and killer performance that makes this the current benchmark for DVD-A playback.
www.meridian-audio.com



5

Primare DVD30 Universal £2,000 ★★★★★

Competent if not entirely captivating with every format, the DVD30 handles DVD-Audio, DVD-Video, SACD and CD. Fantastic video performance, scintillating audio playback, elegant understated design. Available in black or silver. www.primare.nu



6

Sony DVP-N5999ES SACD £700 ★★★★★

Sony makes the widest range of SACD players, and this model is exceptional at producing pristine sound from two channel CDs and SACDs alike; and as a progressive scan DVD player it's a highly recommended buy too. www.sony.co.uk



7

Denon DVD-A11 Universal £1,700 ★★★★★

One of the most flexible DVD, DVD-Audio and SACD players available. Music sound ultimately isn't the best – and certainly nowhere near as good as the previous six players – but it's brilliant with movies. www.denon.co.uk



8

Arcam FMJ DV27A DVD-A £1,900 ★★★★★

Arcam's FMJ (Full Metal Jacket) DVD/CD player is simply awesome in DVD-Audio playback, good but a little jaded in parts in CD playback, and better than many dedicated DVD players though not outstanding. www.arcam.co.uk



9

Yamaha DVD-S830 DVD-A £400 ★★★★★

It's more than just a pretty face: the Yamaha is a very likable DVD-A player and boasts some generous fine-tuning functions normally reserved for much more expensive players. Great value, but in performance it's only above average. www.yamaha.co.uk



10

Philips DVP720SA SACD £140 ★★★★★

Super Audio CD doesn't have to come with a hefty price tag. This DVD/SACD player is surprisingly competent with both two-channel and multichannel for the price, and handles DivX, MPEG and others too. www.philips.co.uk



2

Linn Unidisk 1.1 Universal £6,500 ★★★★★

A simply awesome universal player offering class leading performance with every silver disc you care to put in it. Side by side, the Linn performs better, marginally, than the Pioneer (above) in every respect, but just look at the difference in price! Linn's historic experience in high-end hi-fi plays great dividends for this truly universal player. Despite those unassuming looks, it gives a magical performance no matter the media. Highly recommended if you can afford it. If you can't, only side by side can you really tell the SLIGHT difference in output between the Pioneer and the Linn. It's a no-brainer!
www.linn.co.uk



3

Marantz SA-1 SACD £5,000 ★★★★★

A truly astonishing player, the Marantz is the ultimate reference machine for SACD. The detail in the playback confirms that the format has succeeded in what it set out to achieve. You'll honestly hear stuff you never knew existed on your album collection, and it's all done so effortlessly. And for two-channel CDs it does just as good a job, getting 110 per cent out of the format and finding details no other CD player achieves. Astonishing, if we haven't said so already. And it's not so silly-money as what follows at number 4...
www.marantz.com



HEADPHONES

1 Grado RS2 £450 ★★★★★

Detailed, smooth, with unbeaten build quality, the Grado RS2's are testimony to the fact that quality comes at a price. None-fatiguing detail matched by no other semi-open headset, and a resonant bass, this is the reference system for semi-open headsets. The RS2s are beautifully handcrafted with mahogany, providing a smaller air-chamber than their RS1 predecessors, but as a result the balance between comfort and ultimate sound quality is more in its favour. The behind-the-times styling won't appeal to everyone, but who cares? You can shut out the rest of the world with these things.
www.gradolabs.com



2 Sennheiser RS65 £120 ★★★★★

Quality wireless headphones that employ RF technology to good effect. They deliver a transparent, detailed picture with a surround-sound effect, and the velvet-like cushions make them one of the most comfortable. www.sennheiser.co.uk



3 Sennheiser PXC 250 £80 ★★★★★

The ultimate middle ground between your bog standard iPod earbuds and full monty studio cups. Foldable, comfortable, and wholly enveloping sound; an essential accessory, and not just for chavs.
www.sennheiser.co.uk



4 Technics RP-F880 £55 ★★★★★

Despite the low price, the semi-open F880s from Technics offer a fulfilling listening experience with all kinds of music. Treble, midrange and bass are detailed and converse fluently together. Not a perfectly snug fit though. www.panasonic-europe.com/technics



5 Sony MDR-V700DJ £100 ★★★★★

Suited more for rock and pop than other musical forms, with plenty of volume on tap. They lack the transparency of the Grado and Sennheisers, but they're still excellent value for money and extremely comfortable. www.sony.co.uk



DAB RADIO



1 BT Voyager Digital Media Player £150 ★★★★★

www.btshop.com

2 Tag McLaren AV32R £2,300 ★★★★★

www.laguk.com/tma

3 Cambridge Audio DAB300 £120 ★★★★★

www.cambridgeaudio.com

4 Pure Digital Legato £350 ★★★★★

www.pure-digital.com

5 Pure Digital The Bug £150 ★★★★★

www.pure-digital.com

6 Philips DA1000 portable £150 ★★★★★

www.philips.co.uk

7 Pure Digital Evoke-2 £150 ★★★★★

www.pure-digital.com

8 Panasonic RF-D1 £130 ★★★★★

www.panasonic.co.uk

9 Ministry of Sound MOSMC018 £200 ★★★★★

www.ministryofsound.com

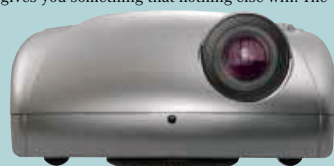
10 Sharp DV-DB1E £130 ★★★★★

www.sharp.co.uk

PROJECTORS

1 Sim2 Grand Cinema HT300 Evolution £8,000 ★★★★★

Whether it's worth spending the cost of a small car for the ultimate big picture is a matter between you and your bank manager, but rest assured every pound of this machine gives you something that nothing else will. The latest in Sim2's Grand Cinema line is HDTV compatible, is well connected with HDMI and analogue ports, stylish in design, and the picture is simply enchanting. The undisputed king of home cinema projectors... as it should be for eight grand.
www.sim2.co.uk



2 Optoma ThemeScene H57 £1,900 ★★★★★

Dazzling in white, shapely built, approachable, and tremendous to watch in action; no it's not Cameron Diaz, but Optoma's new DLP projector. Performance like this would have bankrupted Hollywood a year ago. www.themescene.tv



3 Hitachi Illumina PJ-TX100 £1,100 ★★★★★

A home cinema bargain this, offering top-end features and great picture quality at an attractive price. Lens shift, genuine widescreen, DVI connect, and resolution up to 720p are among the highlights. www.hitachi.co.uk



4 Epson Dreamio EMP-TW500 £3,088 ★★★★★

A surprising entry in our chart, as Epson takes on the traditional projector brands and succeeds with this gorgeous high-calibre LCD stalwart. Excellent connectivity (DVI and even HDMI), detailed images and all the picture controls you could need. www.epson.co.uk



5 NEC HT410 £870 ★★★★★

The ultimate budget DLP home cinema projector, the NEC is packed with useful and desirable features, boasts a natural picture with good colour saturation, and the stylish pearlescent finish belies its low price. www.nec.co.uk



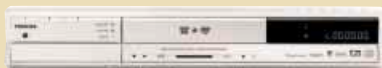
DIGITAL VIDEO RECORDERS

1

Toshiba RD-XS32 £500 ★★★★★

Granted, you'll need to take a degree in electronics engineering to master this hugely complex beast, but it'll be well worth the effort when you've got your head round it. This is the most flexible digital video recorder on the market today. There are extensive dubbing and editing features, numerous quality levels for both sound and video, picture-in-picture and too many other useful tools to mention here. The Toshiba also features great connectivity and three 'difficulty' levels depending on how complex you want to get. Yes, it's even better overall than Sky+ in our opinion, though it was a tough call.

www.toshiba.co.uk



CHECKLIST

The features you need

✓ HDD recorders

We recommend you consider a hard drive based digital video recorder for their convenience and ease of use. But for video archival and back-up, DVD recorders are recommended.

✓ DVD-R types

Consider the type of DVD recorder: DVD-RAM recorders are the most technologically advanced, but DVD+RW are the most popular.

✓ EPGs

Buy an HDD recorder that comes with a built-in electronic programme guide (EPG) to automatically record your favourite shows.

✓ Connections

Your recorder should have component video out, and preferably DVI or HDMI also. To connect to a surround sound system, you'll need optical or co-axial digital outputs.

✓ Progressive

Buy a progressive scan recorder and player for the best picture quality. Top-of-the-line DVD recorders employ a Faroudja de-interlacer. To squeeze more video on to your hard drive, buy one with variable bit-rate recording.

4

JVC DR-M10 £400 ★★★★★

A superb DVD player and recorder, with disc library system and class leading features. Personally, we'd still plump for a HDD model, but JVC claws its way into our top ten for sheer playback quality and ease of use. www.jvc.co.uk



5

Panasonic DMR-E85H

£430 ★★★★★

80Gb hard disk and DVD-RAM/DVD-R recording are the important specs to note in this highly desirable and affordable VCR replacement. There are several other excellent models in Panasonic's DVR line-up, so shop around. www.panasonic.co.uk



6

Thomson Scenium DTH7500E

£400 ★★★★★

A stylish alternative to Sky+. Its picture quality shines through, and we like the design of the chassis too. Moreover, with a built-in MP3 decoder and JPEG image playback; the Scenium could feasibly form a central server for your digital entertainment. www.thomson-europe.com



7

Kiss DP-1508

From £350 ★★★★★

Laced with useful convergence features, such as Ethernet and Wi-Fi networking, but it's a pity more time wasn't spent making it easier to use, and there's no DVD-recording. www.kiss-technology.com



8

Pioneer DVR-S100H

£600 ★★★★★

This slim DVD-RW/HDD combi features time-shifting with chasing playback, a smattering of editing controls and an inviting user interface. But why on Earth doesn't it have RGB and progressive scan output? www.pioneer.co.uk



9

Panasonic DMR-E500HEBS

£1,300 ★★★★★

Easy to use, excellent sound and picture, and a massive hard disk capacity capable of holding just about every Friends episode ever made. One of the best DVD/HDD combos, don't get us wrong, but we expect better connectivity for the price. www.panasonic.co.uk



10

Sharp DV-HR300H NEW ENTRY

£350 ★★★

This brand new DVDR/PVR claws its way into our Top 10, but its claws aren't quite sharp enough. The price is the best thing about it. Crude menus, dated hard drives and a few ignorant omissions tell us to hold out for something better. *Reviewed page 43.* www.sharp.co.uk



ON THE OFFICE PVR



No Angels

While American TV drama is thriving, the Brit equivalent has been feeling bogged

down in detective potboilers and docu-dramas. Thankfully Channel 4 has rediscovered its touch for contemporary drama. *Shameless* is confirmed for a third series, while this antidote to the worn-out *Casualty* has made a welcome return. The focus remains squarely on a quartet of nurses as they negotiate the challenges of sex, love and that great big grey area in-between. Channel 4



Dead Like Me

It says much for the darkly comic tone of this series that of all the ways the writers could have chosen to kill off central character Georgia in the first episode, they picked death by toilet seat – one plummeting to earth from the Mir space station. George's untimely demise and the new life she found afterwards is the premise of *Dead Like Me*, just returning for its second series. George enjoys a twilight existence, recruited to shepherd others to the afterlife and learning in the process why they're not quite ready to join their charges. Sky One



The OC

Sure, it's only a teen drama, with the usual elements of gorgeous leads, omately intertwining relationships and the local bar's amazing ability to attract the country's leading bands – but the saving grace of *The OC* is what might be the best-written dialogue on TV just now. Cracking one-liners fly even as the soapy storylines reach new heights of absurdity. It may not be remotely realistic, but it is supremely entertaining. Perfect morning-after eye-candy. E4, Channel 4

DIGITAL CAMERAS

1 Canon EOS 300D

£730 (with standard lens) ★★★★★

A groundbreaking camera that brought digital SLR photography into the mainstream. This enthusiast's camera offers an enticing mix of hi-tech and low cost. SLR flexibility, compatibility with the entire range of Canon-mount lenses, flashguns and accessories, and topped off with all the convenience of the latest digital imaging technology. The EOS 350D was announced last month and will be heading to a Jessops store near you now. Check it out.

www.canon.co.uk



2

Panasonic Lumix DMC-FZ10

£400 ★★★★★

Marrying a dynamic and detailed digital image sensor with a bright and clean 12x optical zoom lens from the Leica stable, the Lumix takes compact cameras far beyond their original point-and-shoot brief. www.panasonic.co.uk



3

FujiFilm FinePix F700

£270 ★★★★★

Innovative imaging technology that provides the best dynamic range of any digital camera, built into a slim yet high-powered compact body. One of the most flexible point-and-clicks, coping equally well in near-dark as the midday sun. www.fujifilm.co.uk



4

Kodak EasyShare DX6490

£270 ★★★★★

Just when you thought Kodak had bitten the digital photography dust, it comes up with several decent consumer compacts including this small 10x zoom model packed full with creative picture taking controls. www.kodak.co.uk



5

Casio Exilim EX-Z4U

£280 ★★★★★

Barely bigger than a credit card, the EX-Z4U from king of the ultra-compacts Casio somehow manages to pack in a 2-inch LCD preview screen, an internally-moving 3x zoom lens, and four million pixels of image information. Genius. www.casio.com



DIGITAL CAMCORDERS

1 Sony DCR-HC40E

£560 ★★★★★

Compact and overflowing with features, this camcorder's value is matched by excellent performance. Of the mountain of features on offer, the most notable has to be a true 16:9 widescreen mode and a picture quality that packs a meaty punch, giving footage a wonderfully cinematic field. Other highlights include a 10x optical zoom lens and a generous stocking of computer software for creation of basic DVDs and Video-CDs. A feature-packed camcorder.

www.sony.co.uk



2

Canon MVX250i

£550 ★★★★★

It might not be a hugely exciting camcorder on the outside, but it delivers where it counts with fantastic picture quality. Bags of digital goodies, direct print and plenty of options to connect to your digital home. www.canon.co.uk



3

Panasonic SV-AV100 D-SNAP

£1,000 ★★★★★

Stylish, ultra-portable and versatile, this excellent performer serves as an awesome multimedia tool. Records in MPEG-2 and MPEG-4 to Secure Digital. Capacities are limited but this is offset by the convenience of the camera's compact size. www.panasonic.co.uk



4

Hitachi DZ-MV580E

£800 ★★★★★

Though limited to DVD-RAM and DVD-R media, this camcorder offers advanced editing software. Colour reproduction isn't always faithful, but there are considerable advantages, especially in its direct DVD recording. www.hitachidigitalmedia.com



5

Sanyo Xacti VPC-C1

£500 ★★★★★

It might be compact in size, but this still-camera/camcorder combi is not short on features. Storing good quality 3.2 megapixel MPEG-4s on to SD flash card, the pocket-sized Xacti is the most convenient option for on-the-fly videography. www.sanyo.co.uk



1

Archos AV480

£600 ★★★★★

Trounces Creative's new Portable Media Center device with recording functionality as well as video playback and compatibility with a good range of digital audio and video formats. The GUI is fiddly in places, but you can put up with its quirks as it's the most flexible portable entertainment device on the market today. A smaller 20GB version is also available.

www.archos.com



CHECKLIST

The features you need



DRM
If your digital audio collection comes from a number of sources, watch out for the digital rights management (DRM) technology usually found on devices from established companies such as Panasonic, Toshiba and Sony.



MP3 formats
Buy a player that's compatible with a wide range of media formats: AAC, MP3, WMA, Ogg Vorbis, and so on.



Audio quality
Don't buy a portable audio player with a signal-to-noise ratio of less than 85dB.



Flash v HDD
If you want the most compact audio player possible, buy a flash-based, rather than a hard drive, player.



Video players
Digital video jukeboxes and all-in-one portable media players are in their infancy. Always try out the device before buying, check screen quality, ease of use, and the range of compatible media formats, both audio and video. Ideally, you want built-in video recording capabilities.

4

Creative Zen Portable Media Center

£399 ★★★★★

The first PVP to use Microsoft's Media Center software, this 20GB device might lack iPod-esque street cred and have a prototype feel about it, but it's a must-have for early adopters wanting the next big thing. www.creative.com



5

Philips HDD120

£300 ★★★★★

The next best portable audio player to the iPod, and our recommendation for WMA support. Snapping at the heels of Apple, Philips offers line-in recording, a remote control, fast scrolling and a large clear display. www.philips.com



6

Samsung YH-999

£400 ★★★★★

The whole portable media center craze is in full swing, with more models from iRiver & Co. expected imminently. Samsung's effort doesn't quite live up to Creative's debut, above at number four. www.samsung.co.uk



7

iRiver H320

£300 ★★★★★

Playing back digital photos on its large, detailed colour screen, and tuning into FM radio, this good value model is more than an MP3 player but doesn't quite offer the all-in-one practicality of a PVP. www.iriver.com



8

Creative Labs Nomad Jukebox Zen Xtra

£160 (30Gb) £300 (60Gb) ★★★★★

Another worthy alternative to the iPod if it's only audio you want to take on the road, the Xtra offers excellent sound quality, a large display and easy synchronisation. The design's already looking a tad dated, though. www.creative.com



9

Apple iPod Shuffle

£69 (512Mb) ★★★★★

What, an MP3 player without a screen? Well, for a daily random selection of your favourite iTunes music on the journey to work, why not? 1Gb also available. www.apple.com/uk



10

Albatron Widio NEW ENTRY

£120 ★★★★★

We can't think where they've got the pearly white finish idea from, but this is more than just another iPod clone. It's packed full of functionality and wireless technology. Highly flexible and unbelievably cheap. Reviewed page 53. www.widio.com



PDAs/SMARTPHONES

1 Sony Ericsson K700i

£240 (without contract) ★★★★★

We didn't think Sony Ericsson would so soon better the T610. It has. The company has redefined the mobile phone interface with the K700i, offering a colourful, slick and more intuitive front-end than most of the competition. It's packed with features, including an organiser, MP3 player and even an image editor. Its predecessor but one, the T610, was a best seller around the world, so the K700 has solid foundations. With built-in Bluetooth and loads of great software applications, this smartphone is an essential entertainment accessory and personal organiser in one.

www.sonyericsson.com



2 Siemens SL65

£300 (without contract) ★★★★★

Stylish GPRS phone that comes with the latest mobile phone gizmos - MMS and a built-in digital camera, for instance - and it's also great to use thanks to its welcoming, elegant interface.

www.my-siemens.co.uk



3 i-Mate Jam

£410 ★★★★★

The Jam hits the right middle ground between compact mobile phone and functional PDA. We can't quite go so far as to say the Jam is 'the ultimate Pocket PC phone', but it's damn close.

www.i-mate.com



4 HP iPAQ H4150

£278 ★★★★★

The best choice for portable wireless networking with built-in Bluetooth and Wi-Fi. A little short on entertainment features for our liking, but for professional use it's an all-out winner.

www.hp.co.uk



5 Blackberry 7100v

£Free with Vodafone contract ★★★★★

It's not full-blown 3G, admittedly, but this GPRS phone is an easy-to-use solution to mobile email and internet. And it can be cheap depending on your phone contract.

Available from Vodafone.

www.vodafone.co.uk



EXTRAS

1 Apple Airport Express with AirTunes

£99 ★★★★★

www.apple.com

2 Neuston Virtuoso MC-500 Digital Media Adapter

£199 ★★★★★

www.neuston.com

3 DVDto iScan HD Video UpScaler

£1,000 ★★★★★

www.dvdo.com

4 Super Cantenna Wireless Network Antenna

\$50 ★★★★★

www.supercantenna.com

5 Oregon Scientific Weather Forecaster

£68 ★★★★★

www.skyview.co.uk

6 LG U81103G Phone

£Free with 3-network contract ★★★★★

www.lge.co.uk

7 D-Link i2eye DVC-1000 Broadband Videophone

£205 ★★★★★

www.dlink.co.uk

8 Linksys Wireless-G WGA54G

£55 ★★★★★

www.linksys.com

9 Buffalo TeraStation

£600 ★★★★★

www.buffalotech.com

10 AverTV GO 007 Plus

£30 ★★★★★

www.aver.com

MOBILE COMPUTERS

1 Apple 17-inch PowerBook G4

From £2,000 ★★★★★

Expensive, but as desktop replacements go this is everything a mobile computer should be: powerful, connected, portable, and extremely classy in appearance. The widescreen display is bright and simply gorgeous, and the backlit keyboard and anodised aluminium chassis leaves everything on the PC side of the fence drooling. It is expensive, admittedly, but top marks in every other single field confirm the PowerBook G4 as still the most desirable laptop around. Instantly recognisable, it's a style icon too. Pricey... but perfect.

www.apple.com



2 Sony Vaio PCG-TR5MP

£1,800 ★★★★★

Ultra-portable notebook with a superb feature set, including 10.6-inch screen, 40Gb hard disk, wireless-G and Bluetooth connectivity, four-hour battery life, 1.1GHz Intel processor and even a built-in web cam.

www.sony.co.uk



3 Sony Vaio VGN-A217M

£1,350 ★★★★★

Okay, a difficult entry under 'mobile' computing, considering it's about as portable as a cello. As desktop replacements go, this is a powerful entertainment machine.

www.sony.co.uk



4 Toshiba Qosmio E10

£1,500 ★★★★★

Toshiba's latest mobile entertainment PC is highly specified, well built and as reassuringly reliable as, well, a Mac. We just don't know why this 'entertainment' PC hasn't got a widescreen monitor.

www.toshiba-europe.com



5 Averatec 3300 NEW ENTRY

From £800 ★★★★★

If it had a decent dedicated graphics chip, this laptop would be untouchable in this market. But actually, you don't really need it. This wafer-thin model would outmanoeuvre an Austin Martin DB9 if it were a car. It's cheap too. Reviewed page 51. www.averatec.co.uk





OPINION

HIGH DEF DISCS

Is it possible that manufacturers can support two rival formats at the same time? **Richard Stevenson** hopes so...



It brought tears to my eyes when the HD-DVD format was announced. For once I thought an industry might unite behind a single format, Blu-ray. I thought they might be able to avoid confusing the issue with mindless wrangling and fistcuffs. Oh, how wrong.

At a press event at the recent Bristol Hi-Fi Show, proponents from both camps took to the podium to fight their corner in a clash of spec sheet trumps. Blu-ray has more capacity but HD-DVD will be easier to replicate for film studios. Blu-ray will be in PlayStation 3 but HD-DVD will be in Xbox 2. Blu-ray is recordable... HD-DVD might be by the time products come to market.

By the time it got to the broken bottles and hurled bar furniture stage, Bob Stuart from Meridian (format agnostic, ten wins by ten KO's) pointed out that, at the application level, the formats are identical. They are both

simply carriers of data, and the features, functionality, firmware and software that will get the world excited will easily go on either format.

A silence descended. Chairs were put down, wounds were patched and there was an outbreak of spontaneous male hugging. As we've seen with DVD-RAM, DVD-RW and DVD+RW, a number of formats can co-exist because it ain't what you got – it's what you do with it. And what you can do with either format is going to be absolutely fantastic.

Recording many, many hours of standard TV per disc and getting high definition movies in a packaged format is just the beginning. The specification of

either format is still being developed, and already manufacturers are talking about merging pre-recorded films seamlessly with streamed content. While watching an HD film you could be able to interactively choose the type of ending as you go along or run with numbers of different soundtracks.

Different languages and extras no longer have to be on the disc – you will simply stream them in alongside the movie. Translate that into either of the forthcoming consoles and the world of gaming is about to hit levels of reality simulation and interaction that are hitherto the stuff of sci-fi. Niceties like full Javascript engines are an integral part of both formats and it will be leveraged in PC

software, games and pre-recorded entertainment.

But from my point of view, there seems to be a genuine enthusiasm for high quality audio on these new formats. The final spec for either is likely to be eight channels of 24bit/192kHz audio – that is eight channels of the highest resolution of DVD-Audio – and it's

going to blow away both CD and DVD sound.

As for which format will dominate – who cares? Will one win outright? I doubt it. The key here is not to let this escalate into a war – it doesn't need to be one. I believe both formats will co-exist with similar, superb benefits, just like the DVD-recording formats. The essence is a huge advance in entertainment technology and I don't want to miss out through over-zealous warmongering on the part of manufacturers. Frankly, if chewing off my own arm would get me either player and a bundle of software right now, I would be salting my elbow as I write.

Agree? Email digitalhomeletters@futurenet.co.uk

“By the time it got to the hurled bar furniture, Bob Stuart from Meridian pointed out that, at the application level, the formats are identical”

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PERIOD PERFECTION

A property developer has refurbished his £1.95 million Mayfair apartment with multiroom audio, flatscreen displays and CAT-5 cable throughout

LOCATION MAYFAIR **PRICE** £20,000 **INSTALLER** TECHAUS **CONTACT** www.techaus.co.uk, 01844 214 121

Wouldn't it be nice just to be able to move straight into a hi-tech home? Not to have to worry about laying the cables yourself, or mounting giant plasmas on the wall and ripping out parts of the ceiling to install speakers. Well if you've got the money to spare, it is now perfectly possible to do just that. These days many new 'executive' homes come with CAT-5 cabling and home entertainment as standard while dozens of custom installers specialise in refurbishing period properties with all the latest mod cons.

Here is a classic example. It's a large two bedroom apartment in London's extremely swanky Mayfair which is currently on the market for a cool £1.95 million. Owned by Richard Cutt, a partner in upmarket estate agent Knight Frank, it has been refurbished to appeal to wealthy customers who want the latest hi-tech facilities. "Many of our clients now expect plasma screens, home networking and multiroom audio as standard," explains Cutt. "If they're not included then it could leave question marks over other parts of the property."

And mindful of this customer expectation, Cutt spotted a perfect business opportunity. He bought this central London apartment in a somewhat dilapidated state around two years ago, and teamed up with Oxfordshire-based custom installer Techaus. Their plan was to provide some of the latest hi-tech facilities with the view to enticing prospective buyers when the property went back on the market. "When Richard came to us he was quite convinced that there was money to be made from adding technology," says James Misselbrook, sales and marketing manager for Techaus. "It was our job to work within the fairly tight budget to find a solution he was happy with."

Approximately £20,000 was spent on technology in total, a fraction of the overall refurbishment spend (considerably more was spent on the home's furniture), but enough to include the essential hi-tech solutions that most buyers in this market look for. These include a home cinema with surround sound, video entry system, multiroom audio, CAT-5 cable throughout and flatscreen video displays in the reception room, kitchen and two large bedrooms. Work started in September 2003 and finished early 2004. "Technically it was quite a challenging job, largely because we were working on such an old period property," says Misselbrook. "But we are quite pleased with the reliability of the system."


Undoubtedly the pièce de résistance of the entire property is the extremely large and very light and airy reception room. Here you will find a 5.1 channel home cinema system comprising a Panasonic 42-inch plasma screen, five in-ceiling speakers and a subwoofer. Although Techaus wanted to install in-wall speakers – which would not only have been simpler to do but would also have provided better overall acoustics – the client insisted that the speakers should be hidden away in the ceiling, leaving the walls clear for paintings. "As a result we compromised on Jamo rectangular speakers in the ceiling which we were able to balance up with the speaker itself, not just by using the AV amplifier," says Misselbrook. "Considering the



From top to bottom A Panasonic 42-inch plasma screen adorns the reception room wall above the fireplace; speakers were fitted in the ceiling so that the walls were left clear for painting; a futuristic QED four zone Systemline control system has been installed alongside a Philips Pronto handset to provide multiroom control; yet another plasma screen decorates a wall in the dining room; the hub of the apartment is the equipment cupboard, hidden discreetly away behind leather doors.



TECHING - Live, Inform, Inspire, Non-cost and Genuine !



The airy reception room's
Jamo speakers were set into
the ceilings, leaving the
walls free for paintings

Top Gear

We don't normally highlight the equipment rack in digital homes – the whole idea is that the kit should be completely out of sight (and largely out of mind). But then not every equipment rack is so well built and beautifully laid out as the one in this flat. Rather than throwing the equipment into an existing cupboard and hoping that it all fits, Richard Cutt has had a cupboard specially built. Located in the hallway behind the front door, it has lovely brown leather doors which gently spring open when you push them in slightly. On the right hand side is the cloak cupboard, on the left is the AV rack. Here (see photo on page 2) you'll find all of the digital home's five AV sources, including Sony and Panasonic DVD players, Sony FM/AM tuner and two Sky boxes. These feed the home's various flatscreen displays including a Panasonic 48-inch plasma in the living room, two Panasonic 20-inch LCDs (one in the kitchen; one in the master bedroom) and a Sony 15-inch LCD in the second bedroom-cum-office. Also located in the AV cupboard is the QED Systemline 1.52 Commander, Systemline Multiroom controller and a Pioneer AV receiver.



From top to bottom The plasma screens dotted around the apartment can all be controlled by the Philips Pronto, as can the lights and heating; the Futronix lighting system can store up to 20 preset lighting 'scenes', controlled via a wall panel; the kitchen is equipped with two Ethernet points, in case the owner needs to check a recipe before cooking; the bathrooms are equally hi-tech, with in-ceiling lighting and sophisticated heating and lighting controls in each.



extremely high ceilings, we are quite pleased with the overall sound," he adds. Another problem the installer faced was with the original 'lath and plaster' ceilings (this is where plaster is bonded to thin, horizontal strips of timber.) As a result there was only four inches of ceiling depth into which the speakers could be installed – and this meant it wasn't possible to use Jamo's round speakers. Initially the Jamo subwoofer was located at the front of the room, but Cutt decided to move it to the back of the room behind the door – largely because he thought the sound was better from there.

As well as the technical problems of working in an older style property, Techhaus also had to deal with the client's financial constraints on the property's refurbishment. One of Richard Cutt's main requirements for the apartment was, understandably, to install a control system that could be used simply by any prospective buyer. However, he also wanted it to be able to handle up to five different AV sources located in his equipment rack (see Top Gear box, previous page). This included two Sky boxes (one for Sky+), two DVD players (one for multiroom audio) and an FM/AM tuner. "The problem is that there is a huge difference in price between the four zone, four source control systems and the six zone, six source systems" explains Techhaus' Misselbrook. "A six zone system from a company like Living Control would have been overkill for this type of set-up."

As a result a compromise solution was reached. QED's four zone Systemline control system was installed in most of the main rooms with a Philips Pronto handset providing additional control. Using Macros which were programmed in by Techhaus, the Pronto toggles between the tuner and CD/DVD player options on the AV amplifier, thereby effectively providing five source control from a four zone system. Alternatively, it's possible to use the wall-mounted QED Systemline panels to turn the volume up and down and switch between the main sources (a red dot-matrix display on most of the panels gives additional information such as the source name). "The great thing about Systemline is that it's very discreet and fits neatly into a standard backbox," says Misselbrook. "The stainless steel surround also fits in very well with this property's decor."


While entertainment is the main thrust of the home's hi-tech system, it's not confined just to fancy sound and vision. There's also some hi-tech lighting (see Light Fantastic, opposite), a Nova BPT video entry system and a Local Area Network (LAN). Structured CAT-5e cabling has been laid throughout the two bedroom apartment with Ethernet points in most of the rooms. There are even two points in the kitchen above the work surface – handy if you want to check out some recipes online before preparing a meal. Says owner Richard Cutt: "I don't particularly trust wireless technology, there could be potential health problems in the long term which we just don't know about yet. It could be the next asbestos." While his fears seem largely unfounded at present there are nevertheless good reasons for choosing wired over wireless technology – for a start faster, it's more robust and it's also more secure.

Given a budget of just £20,000 it's really amazing what has been achieved in this fantastic two bedroom apartment. If you want the latest luxuries that technology affords all within a central London period style property then it's definitely worth considering. The only drawback, for most of us, is the cost. With a price tag of £1.95 million, a luxury digital home like this certainly doesn't come cheap! **DH**

About Techhaus

Based in Thame, Oxfordshire, Techhaus was formed in 2000. The company designs, commissions and installs its own cost effective home automation systems. It also offers wired and wireless networking, along with security, entertainment and custom lighting solutions for hi-tech homes.

www.techhaus.co.uk



The two-bedroom apartment is valued at almost £2 million – so the technology must be geared towards that bracket of buyer

Light Fantastic

The good news is that you don't have to spend thousands of pounds on a state-of-the-art Lutron lighting system. There are other more affordable, hi-tech lighting solutions around. Futronix (www.futronix-info.com) is a company we haven't previously featured in *Digital Home*, but which seems to do a pretty good job of providing residential and commercial lighting systems. Located in the living room of this Mayfair apartment the Futronix system centres around a stainless steel lighting panel complete with red LED display (to match the Systemline keypads). Up to 20 light scenes can be programmed into the keypad to create different mood settings for watching a movie, reading a book or entertaining guests, and such like. To change between these you can either press the up and down arrows on the keypad or use the remote control that comes supplied with the system. In addition to the mood lighting in the living room, the apartment also features stainless steel rotary dials which control the lighting in the rest of the home, including the lights on the staircase leading up to the two bedrooms.

WHAT'S INSIDE

THIS MONTH'S PRODUCTS UP CLOSE



1 QED Systemline S4.4 £2,600

From QED comes a multiroom AV system for those who want a flexible home entertainment solution without spending an absolute fortune. A two box AV system, it comprises a commander, which is responsible for learning and routing IR codes, as well as providing external communication via an RS232 port, and a controller (pictured) which is a time-tested multiroom audio processor with programmable bass, treble and start-up volume settings. A four source system, it can be expanded to 20 zones with additional commander/controllers if required.

www.qed.co.uk

2 Jamo A7SUB £399

Subwoofers aren't exactly renowned for their dashing good looks but this latest model from Danish firm Jamo is definitely more attractive than most. Created by designers Smedegaard and Weis (responsible for the entire Jamo 2F range), it's part of Jamo's new A7 line-up and matches the company's existing HDP4250 plasma screen and DVR50 DVD receiver. Sporting a 10-inch woofer, the A7SUB comprises a closed box design fitted with a 200 watt digital amplifier capable of delivering 500 watts of peak power. It has a low frequency extension of 35Hz.

www.jamo.com

3 QED multi-source keypad £125

Designed specifically to work in conjunction with the QED Systemline 4.4 multiroom audio system, this sophisticated keypad features a red alphanumeric display and a bank of control buttons. Not only can you switch between four different sources (DVD, satellite, CD, tuner) you can also adjust the volume and skip through tracks. And to suit your digital home's decor, it's available with different fascias, including brass, white, chrome and nickel.

www.qed.co.uk

4 Philips ProntoPro SBCRU980 £650

Control your complete home entertainment set-up with this latest touchscreen handset. Boasting a 3.8-inch colour display with more than 65,000 colours, the ProntoPro features an infrared database with codes for over 1,100 brands. It can also learn controls from other handsets. A built-in RF transmitter means that, unlike a standard IR control, it can be used through walls while the Pronto ProEdit NG software enables you to change the look and feel of the screen.

www.pronto.philips.com

5 Panasonic TX22 LT3 £1,500

Great if you're looking for a flatscreen display for the bedroom or the kitchen, this 22-inch widescreen TV comes with a plinth stand or can be mounted directly on the wall. Features include WXGA panel (1268 x 768 pixels), 176 degree viewing angle, and both a Scart and phono input for hooking up external AV sources. It also comes with Nicam stereo speakers and bass-reflex woofer for reasonable quality sound.

www.panasonic.co.uk

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INSIDE GUIDE TO HVAC

Heating, ventilation and air conditioning may lack the glamour and sexiness of flatscreen video displays or fancy home automation systems. But it is – argues

Chris Price – an extremely useful add-on for any digital home

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CUSTOM INSTALL 9

When it comes to home entertainment, technology has completely changed the way many of us live. Flatscreen video displays, multiroom audio and touchscreen control panels are now pretty much the norm in most hi-tech homes.

However, not all areas of home technology have seen the same advances. For example, when it comes to HVAC (heating, ventilation, air conditioning) it often seems that very little has changed in the past 50 years.

Typically most traditional plumbers still provide basic time-clocks and temperature-dial thermostats for their heating systems without giving any thought whatsoever to how the technology could be integrated into part of an overall digital home setup.

Usually most home owners simply set the heating to come on at certain times of the day and adjust the main thermostat to heat the house to an approximate temperature. The most sophisticated the majority of home setups get is to incorporate a digital thermostat. These are now widely available from heating companies such as Drayton (www.invensyscontrolseurope.com) and Honeywell (<http://content.honeywell.com/>

uk/homes.htm). Some, such as the £99 Drayton RF1 Digistat, will even connect to your boiler wirelessly.

However, think how much better, and more energy efficient, it would be to heat each room, or zone, of your house to an exact temperature? And imagine how useful it would be to set your home's heating to switch on or off remotely – either via the internet or your mobile phone – if, say, you want your house to be warm when you come back from holiday. This is exactly what the latest

heating. However, both systems are usually controlled inefficiently.

The conventional method of controlling radiator systems is to use a timeclock and mechanical thermostatic valve (known as a TRV) on each radiator. Similarly, underfloor heating consists of loops of pipe fed by distribution manifolds connected to the main heating and controlled actuators. As the temperature drops, the thermostat makes its electrical contact and the valve allows hot water to flow to the underfloor pipes.

Imagine how useful it would be to set your home's heating to switch on or off remotely – either via the internet or your mobile phone

intelligent hi-tech heating systems will allow you to do. Conversely, it is now possible to integrate domestic air conditioning units within an HVAC system in order to keep your property cool in the summer months.

Continuous vs. thermostat control

Generally, heating systems in houses split into two different categories: radiator (or radiant panel) heating and underfloor

However the fundamental problem in both setups is that thermostats are essentially on/off control devices. When they get too cold, they turn on. When they get too hot, they turn off. As a result the room controlled by the thermostat will always be too hot or too cold and temperature will cycle between these two points.

Fortunately, the latest hi-tech heating systems address this problem by controlling



With a SmartControls HVAC system incorporated into an AMX whole house network, you can now have even more control over what happens in your house. For you main room, AMX's NXT-CV17 Modero (right) is ideal with its large 17-inch widescreen display. Other zones and sub-zones are equally controllable using NXT-CV15 15-inch (below) and CVD-CV7 7-inch (bottom right). You could also include the SeaChange GSM modem too.



room temperature more efficiently. For example, rather than basic on/off thermostat control, heating specialist SmartKontrols provides much more accurate continuous control. Temperatures are measured using discreet temperature sensors, known as thimble sensors, which are sited away from the radiators to give a more accurate room reading. In order to provide comprehensive temperature control each thimble sensor is connected to a zone controller which manages temperature and time control for each room. These zone controllers are, in turn, connected to intelligent actuators which either mount on the radiators or on the pipe that feeds the radiator. For homes with underfloor heating it's possible to use the SmartKontrols system in conjunction with existing thermo-electric actuators located at each of the manifolds. Using SmartKontrols' actuator technology, each radiator's TRV is effectively replaced by a miniature motorised valve, powered by a two wire bus (a tiny low voltage cable).

Intelligent solution

Being able to control each of your radiators individually and intelligently isn't the only

benefit of the SmartKontrols system. It also boasts other innovative and energy efficient characteristics. For example, the hi-tech HVAC system automatically learns the thermal characteristics of a house, monitors the outside air temperature and, using its Optimum Start facility, then selects the best time to switch the heating on in the morning. Similarly, an integral weather compensation feature ensures the heating system is only as hot as absolutely necessary. And when the householder is away from home the control system remains on duty, protecting the building and its contents against damage caused by very low or high temperatures. For very sensitive contents, such as artwork, the system can even incorporate humidity-based fabric protection – this is an approach which SmartKontrols initially developed for the National Trust's properties.

Of course SmartKontrols isn't the only intelligent heating system on the market. Siemens' Smart Home Technology also provides a similar solution for homes and businesses. Central to the setup is the Siemens European Installation Bus (EIB) Device Network – a two-wire installation bus (also known as an Instabus) that provides

digital communications between a range of smart devices. As well as using the Siemens system for home entertainment (including multiroom audio and video), property owners have the option of choosing it for zone-based heating control. As long as you have the structured wiring already in place (the Smart Home system will work over CAT-5), it's possible to add digital thermostats for each room of the house relatively cheaply. These thermostats drop the signal on to a twisted pair of cables for additional control via a Siemens touchscreen display if necessary (a colour LCD screen for the Siemens system will set you back £1,650).

Though you can, of course, spend much more if you have the means, Siemens estimates the basic cost of heating control from them, for a two bedroom apartment, is around £384 – and this includes digital thermostats for every room. However, savings on heating bills for each household could be as much as 30 per cent per year, claim the people at Siemens. "Given how much money you could save on energy it's amazing the government doesn't get behind intelligent heating control," says Siemens' Smart Home Business Manager, Hugh Whalley. And just

TOP TIPS

1 Don't rely on a single hall-based thermostat. It will only give very crude temperature control for a certain part of the house.

2 Choose digital thermostats, or 'digistats', if possible. These give far more accurate temperature readings than their analogue counterparts and can often be connected to the heating system wirelessly, so you don't have to go through the bother of re-wiring your house.

3 Look out for zone-based heating systems. These give you very accurate room-by-room control settings, and will eventually save you money by not heating parts of the house you don't use.

4 Unless you only want heating/air conditioning control in your house, always make sure that you choose a system that can be used in conjunction with other digital home automated solutions (ie, home entertainment, automation, lighting, etc) – you never know what might take your fancy – or the next inhabitant's – in years to come.

5 If you install air conditioning units, try to integrate them into part of an overall HVAC system rather than keeping them separate. This will make the setup far more energy efficient.

6 Touchscreen displays are particularly useful for ease of use. Any decent custom installer will be able to programme a handset for you so you press a '+' or '-' button to adjust the temperature.

7 If you are away a lot and like coming back to a warm house, choose a heating system that can be controlled remotely either via a mobile phone or PC.



Anti-clockwise from top-left:

Homeywell's Hometronic offers wireless control of your heating system, making it an ideal fit for most homes; The AES Skylight electric roof gives you remote-operated window control; Smart heating systems can monitor the temperature and adjust it as necessary; Both AMX and Crestron are able to give you HVAC mastery with a great deal more control than individual room sensors can offer; The latest HVAC systems enable remote control via PC, PDA or mobile phone.



like the SmartKontrols system, rooms that aren't used that often in the home are set to a minimum 'Frost Protection' mode in order to keep costs down.

Remote control

Of course the great thing about intelligent heating systems is that control isn't just limited to inside the house. One benefit of both the Siemens and SmartKontrols heating systems is that they can be controlled remotely, so you can be thousands of miles from your house and adjust the heating – handy if you want to make sure your property is nice and warm when you get back off holiday. With the Siemens system it's possible to dial into the heating network using a landline or mobile phone, and switch the heating either on or off (it's even possible to control each zone or room remotely).

The SmartKontrols system is even more advanced than this, thanks to a smartserver which has been designed to 'serve up' details of a property's heating and/or air conditioning system as HTML internet pages. With a PC and internet access you can then make any adjustments to the home's heating settings

that you like. Another key facility that SmartKontrols offers is SMS (i.e. text message) based control via a mobile phone, a facility it calls smartEtext. Here, the user taps in simple commands like 'Heating On' and the system responds appropriately.

Keeping cool

It isn't just heating which can be controlled with hi-tech HVAC solutions. Air conditioning can too. Increasingly, custom installers are fitting air conditioning systems from

Far better is to integrate the two systems together using a single HVAC system. Though combined heating and air conditioning systems are commonplace in offices, they're still relatively rare in home environments. However if we see more hot summers like the one of 2003, then they are bound to become more widespread. Using a system available from companies like SmartKontrols, you simply set the temperature you want for the room. It then decides whether heating, cooling or no action is required.

Rather than a thermostat in the hallway, these latest systems offer digital-based room control in order to provide optimum temperature levels

companies like Daikin, Mitsubishi, Sanyo and Toshiba in order to keep properties cool during the summer months.

Comprising indoor units (which absorb the heat) and outdoor units (which reject the heat to the atmosphere), they usually come complete with their own built-in controls and user interface. However if the air conditioning system is kept separate from the heating it can cause confusion – and far higher bills.

After 50 years of little change, it seems that a new breed of heating control system has finally arrived. Rather than a thermostat in the hallway, these latest systems offer digital-based room control in order to provide optimum temperature levels. Controllable via touchscreen panels or remotely via the net, these intelligent settings will even help save you money on your energy bills thanks to increased efficiency levels. **DH**

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FINDING A CUSTOM INSTALLER



Once you've decided to opt for custom installation, the next step is to find a dealer who can carry out the necessary work for you...

Whether you're carrying out a major refurbishment of an existing home, or building one from scratch, getting all the necessary work done can be a major headache. You'd like the work to be carried out quickly, smoothly and professionally and you definitely don't want to have to worry about whether it's all been fitted correctly. And nowhere is this more true than with custom consumer electronics.

To put it simply, your average electrician is unlikely to have the knowledge and training required to fit sophisticated alarm or multiroom audio and video systems, and is even less likely to be able to integrate these systems with each other for whole house automation. Even if he or she does, they'll often fit the system that suits their needs rather than a bespoke setup to suit your own. What you need is a specialist installer who can discuss the various options, design a system for you and then liaise with your architect and/or builder to schedule the necessary works to integrate cabling, electronics and controls with the minimum of fuss. Luckily, there's a nationwide network of specialist installers available to help you do just that – and many are members of CEDIA, the Custom Electronic Design & Installation Association – the specialist trade association that not only helps promote the industry, but also sets minimum standards for customer service, technical knowledge and expertise that ensure you get satisfactory service time after time.

Originally founded in the home of custom install – the USA – in 1989, CEDIA is now a worldwide organisation with over 3,000 members spanning three continents. The UK's 190-strong dealer network can plan, design, supply and install anything from a one-room home cinema system to a complete home network, taking in intelligent lighting, security, HVAC (heating, ventilation and air-conditioning) and even garden facilities, like lighting and watering along the way. You don't have to be super-rich to take advantage of their services either. A custom install can be yours for as little as a few hundred pounds, and CEDIA members often work with housing developers to install custom electronics in affordable homes. Indeed, houses fitted out with home automation systems are often highly sought by both the disabled and elderly. Installs don't even have to be carried

out in regular houses – many CEDIA members are able to tailor systems suitable for use in more exotic locations like stately homes, yachts or planes, the only real limits being the amount of space and the wealth of your imagination.

One of the biggest benefits of using a specialist installer like those from CEDIA is that you're paying for and getting a bespoke consumer-focused service. From choosing individual components to whole systems, the dealer works with you to understand your lifestyle needs and then aims to satisfy them in a professional and courteous way. As a non-profit organisation, CEDIA aims to maintain and raise standards across the whole custom installation industry by helping its members enhance their expertise and keep up to date with the latest technology trends through an on-going programme of education and training. All CEDIA members also adhere to a strict set of ethics and guidelines that ensure they deliver the highest degree of service, system installation and design each time, every time – and any work carried out is backed by appropriate insurance and certification, giving you complete peace of mind.

Perhaps the best thing about calling on the services of a CEDIA member is that you won't be left with an expensive white elephant at the end of it. Your custom installer will only fit systems that have a proven track record of reliability, and robustness and will ensure that you have a setup that has been designed around you, rather than the other way around – after all the best custom installation system in the world is only as good as the control system that enables you and other members of your family to use it with ease. You can also rest assured that your relationship with your dealer is likely to be a long and fruitful one. Any problems with the system will often be fixed free of charge as part of a dealer's continuing service, and your dealer will also work with you to upgrade and/or add to the system as your budget and needs dictate. Indeed, future-proofing is a cornerstone of CEDIA's customer-focused philosophy, ensuring that when you decide to take the next step, your local dealer will be there to help you.

• To find out more about CEDIA, please visit the organisation's website at www.cedia.co.uk or turn the page to find a list of member dealers in your area.



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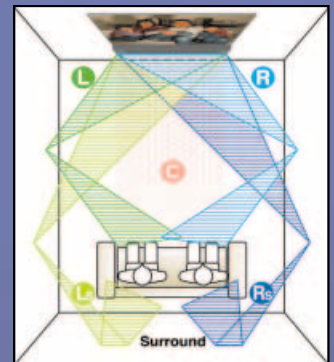


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